

CORRECTED VERSION

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number
WO 2004/089066 A1

- (51) International Patent Classification⁷: **A01H 5/00**, C12N 15/29
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- (21) International Application Number: PCT/AU2004/000493
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 14 April 2004 (14.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2003901796 14 April 2003 (14.04.2003) AU
2004901259 10 March 2004 (10.03.2004) AU
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
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- Published:
— with international search report
- (48) Date of publication of this corrected version: 23 December 2004
- (15) Information about Correction:
see PCT Gazette No. 52/2004 of 23 December 2004, Section II
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: MANIPULATION OF ORGANIC ACID BIOSYNTHESIS AND SECRETION

(57) Abstract: The present invention relates to nucleic acid fragments encoding amino acid sequences for organic acid biosynthetic enzymes in plants, and the use thereof for the modification of, for example, organic acid biosynthesis and secretion in plants. In particularly preferred embodiments, the invention relates to the combinatorial expression of citrate synthase (CS) and/or malate dehydrogenase (MDH) and/or phosphoenolpyruvate carboxylase (PEPC) in plants to modify, for example, organic acid synthesis and secretion.

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MANIPULATION OF ORGANIC ACID BIOSYNTHESIS AND SECRETION

The present invention relates to nucleic acid fragments encoding amino acid sequences for organic acid biosynthetic enzyme polypeptides in plants, and the use thereof for the modification of organic acid biosynthesis and secretion in
5 plants. In particularly preferred embodiments, the invention relates to the combinatorial expression of malate dehydrogenase (MDH) and/or phosphoenolpyruvate carboxylase (PEPC) and/or citrate synthase (CS) in plants to modify organic acid biosynthesis and secretion.

Documents cited in this specification are for reference purposes only and
10 their inclusion is not acknowledgment that they form part of the common general knowledge in the relevant art.

Organic acids, such as citrate and malate, are key metabolites in plants. They are involved in numerous processes, including C₄ and Crassulacean acid metabolism (CAM) photosynthesis, stomatal and pulvinular movement, nutrient
15 uptake, respiration, nitrogen assimilation, fatty acid oxidation, and providing energy to bacteroids in root nodules. For example, malate plays a key role in root nodule metabolism and nitrogen fixation, serving as the primary carbon source for bacteroid maintenance and nitrogenase activity, and is also tightly linked to nodule nitrogen assimilation. Furthermore, the complexing role of organic acids produced
20 and excreted from plant roots has also been associated with tolerance to the aluminium cation Al³⁺ which is toxic to many plants at micromolar concentrations. Aluminium toxicity has been recognized as a major limiting factor of plant productivity on acidic soils, which account for approximately 40% of the earth's arable land.

25 The tricarboxylic acid cycle (TCA), also known as Krebs cycle (after its discoverer Hans Krebs) or citric acid cycle, moves electrons from organic acids to the oxidized redox cofactors NAD⁺ and FAD, forming NADH, FADH₂, and carbon dioxide (CO₂). The reaction sequence of the TCA cycle involves: in a reaction catalysed by citrate synthase (CS), acetyl-CoA formed by the pyruvate
30 dehydrogenase complex combines with oxaloacetate to produce the C₆ tricarboxylic acid, citrate. In the overall cycle, the citrate is oxidized to produce two molecules of CO₂ in a series of reactions that leads to the formation of one oxaloacetate, three NADH, one FADH₂, and one ATP. The resulting oxaloacetate

reacts with another molecule of acetyl-CoA to continue the cycle. The oxidative decarboxylation of pyruvate yields an additional CO₂ and NADH. Thus the TCA cycle brings about the complete oxidation of pyruvate to three CO₂ plus 10 electrons, which are stored temporarily as 4 NADH and 1 FADH₂.

- 5 Cytosolic reactions generate products that are transported into the mitochondria to feed the TCA cycle. The nature of the end product of the glycolytic reactions in the cytosol of plants is determined by the relative activities of the three enzymes that can utilize phosphoenol-pyruvate (PEP) as substrate. Both pyruvate kinase and PEP-phosphatase form pyruvate; while PEP-carboxylase (PEPC)
- 10 generates oxaloacetate. Pyruvate is transported directly into the mitochondrion. Oxaloacetate is either transported directly into the mitochondrion or first reduced to malate by cytosolic malate dehydrogenase (MDH).

Before entering the TCA cycle proper, pyruvate is oxidised and decarboxylated by the pyruvate dehydrogenase enzyme complex to form CO₂, acetyl-CoA, and NADH. The pyruvate dehydrogenase enzyme complex, which

15 requires the bound cofactors thiamine pyrophosphate, lipoic acid, and FAD as well as free coenzyme A (CoASH) and NAD⁺, links the TCA cycle to glycolysis.

It is known that the TCA cycle includes the following enzymes: pyruvate dehydrogenase, citrate synthase, citrate hydrolase, isocitrate dehydrogenase, oxoglutarate dehydrogenase, succinyl-CoA synthetase, succinate dehydrogenase,

20 fumarase, malate dehydrogenase, NAD-malic enzyme and phosphoenolpyruvate carboxylase.

In particular, citrate synthase (CS) catalyses the condensation of acetyl-CoA and oxaloacetate to form the C6 molecule citrate and free CoASH, as the

25 TCA cycle proper begins.

Malate dehydrogenase (MDH) catalyses the final step of the TCA cycle, oxidizing malate to oxaloacetate and producing NADH. This reaction catalysed by MDH is reversible, thus allowing also for the reversible reduction of oxaloacetate to malate. The enzyme MDH is important in several metabolic pathways, and

30 higher plants contain multiple forms that differ in co-enzyme specificity and subcellular localization. Chloroplasts contain an NADP⁺-dependent MDH that plays a critical role in balancing reducing equivalents between the cytosol and

stroma. Plants also contain NAD-dependent MDHs which are found in a) mitochondria as part of the TCA cycle; b) cytosol and peroxisomes involved in malate-aspartate shuttles; and c) glyoxisomes functioning in β -oxidation. In root nodules of nitrogen-fixing legumes, such as white clover (*Trifolium repens*) and alfalfa (*Medicago sativa*), malate serves as the primary carbon source to support the respiratory needs of the bacterial microsymbiont and the fixation of N_2 by nitrogenase, and a nodule-enhanced MDH is thus critical for nodule function.

Phosphoenolpyruvate carboxylase (PEPC) catalyses the reaction of phosphoenol-pyruvate with HCO_3^- releasing the phosphate and producing the C₄ product, oxaloacetate. Oxaloacetate is commonly reduced to malate by NADH through the action of malate dehydrogenase (MDH). PEPC is a homotetrameric enzyme widely distributed in most plant tissues. In plants, PEPC fulfils various physiological roles such as the photosynthetic CO₂ fixation in C₄ and Crassulacean Acid Metabolism (CAM) plants, and the anaplerotic pathway.

While nucleic acid sequences encoding some organic acid biosynthetic enzymes have been isolated for certain species of plants, there remains a need for materials useful in modifying organic acid biosynthesis; in modifying organic acid secretion; in modifying phosphorus acquisition efficiency in plants; in modifying aluminium and acid soil tolerance in plants; in modifying nitrogen fixation and nodule function, particularly in forage legumes and grasses, including alfalfa, medics, clovers, ryegrasses and fescues, and for methods for their use.

This invention is directed towards overcoming, or at least alleviating, one or more of the difficulties or deficiencies associated with the prior art.

In one aspect, the present invention provides substantially purified or isolated nucleic acids or nucleic acid fragments encoding the organic acid biosynthetic polypeptides CS, MDH and PEPC, from a clover (*Trifolium*), medic (*Medicago*), ryegrass (*Lolium*) or fescue (*Festuca*) species, or functionally active fragments or variants of these polypeptides.

The present invention also provides substantially purified or isolated nucleic acids or nucleic acid fragments encoding amino acid sequences for a class of polypeptides which are related to CS, MDH and PEPC (from a clover (*Trifolium*), medic (*Medicago*), ryegrass (*Lolium*) or fescue (*Festuca*) species) of CS, MDH

and PEPC, or functionally active fragments or variants of CS, MDH and PEPC. Such polypeptides are referred to herein as CS-like, MDH-like and PEPC-like respectively and include polypeptides having similar functional activity.

The present invention also relates to individual or simultaneous
5 enhancement or otherwise manipulation of CS, MDH and/or PEPC or like gene activities in plants to enhance or otherwise alter organic acid biosynthesis; to enhance or reduce or otherwise alter organic acid secretion; to enhance or reduce or otherwise alter phosphorous acquisition efficiency in plants; to enhance or reduce or otherwise alter aluminium and acid soil tolerance in plants; and/or to
10 enhance or reduce or otherwise alter nitrogen fixation and nodule function in legumes.

The individual or simultaneous enhancement or otherwise manipulation of CS, MDH and/or PEPC or like gene activities in plants has significant consequences for a range of applications in, for example, plant production, plant
15 performance, plant nutrition and plant tolerance. For example, it has applications in increasing plant tolerance to aluminium-toxic acid soils; in improving plant nutrient acquisition efficiency for example in increasing acquisition of phosphorus from soils; in increasing nodule function in nitrogen-fixing legumes for example leading to enhanced nitrogen fixation; in modifying the accumulation of organic
20 acids such as citrate in fruits; in modifying the secretion of organic acids for example citrate and/or malate from plant roots.

Manipulation of CS, MDH and/or PEPC or like gene activities in plants, including legumes such as clovers (*Trifolium* species), lucerne (*Medicago sativa*) and grass species such as ryegrasses (*Lolium* species) and fescues (*Festuca*
25 species) may be used to facilitate the production of, for example, forage legumes and forage grasses and other crops with enhanced tolerance to aluminium toxic soils; enhanced nutrient acquisition efficiency; forage legumes with enhanced nitrogen fixation; fruits with enhanced organic acid content leading to enhanced flavour and health benefits.

30 The clover (*Trifolium*), medic (*Medicago*), ryegrass (*Lolium*) or fescue (*Festuca*) species may be of any suitable type, including white clover (*Trifolium repens*), red clover (*Trifolium pratense*), subterranean clover (*Trifolium subterraneum*), alfalfa (*Medicago sativa*), Italian or annual ryegrass (*Lolium*

multiflorum), perennial ryegrass (*Lolium perenne*), tall fescue (*Festuca arundinacea*), meadow fescue (*Festuca pratensis*) and red fescue (*Festuca rubra*). Preferably the species is a clover or a ryegrass, more preferably white clover (*T. repens*) or perennial ryegrass (*L. perenne*). White clover (*Trifolium repens* L.) and
5 perennial ryegrass (*Lolium perenne* L.) are key pasture legumes and grasses, respectively, in temperate climates throughout the world. Perennial ryegrass is also an important turf grass.

The nucleic acid or nucleic acid fragment may be of any suitable type and includes DNA (such as cDNA or genomic DNA) and RNA (such as mRNA) that is
10 single- or double-stranded, optionally containing synthetic, non-natural or altered nucleotide bases, and combinations thereof. The RNA is readily obtainable, for example, by transcription of a DNA sequence according to the present invention, to produce a RNA corresponding to the DNA sequence. The RNA may be synthesised *in vivo* or *in vitro* or by chemical synthesis to produce a sequence
15 corresponding to a DNA sequence by methods well known in the art. In this specification, where the degree of sequence similarity between an RNA and DNA is such that the strand of the DNA could encode the RNA, then the RNA is said to "correspond" to that DNA.

The term "isolated" means that the material is removed from its original
20 environment (eg. the natural environment if it is naturally occurring). For example, a naturally occurring nucleic acid or polypeptide present in a living plant is not isolated, but the same nucleic acid or polypeptide separated from some or all of the coexisting materials in the natural system, is isolated. Such an isolated nucleic acid could be part of a vector and/or such a nucleic acid could be part of a
25 composition, and still be isolated in that such a vector or composition is not part of its natural environment. An isolated polypeptide could be part of a composition and still be isolated in that such a composition is not part of its natural environment.

By "functionally active" in respect of a nucleic acid it is meant that the fragment or variant is capable of modifying organic acid biosynthesis in a plant. A
30 variant in this context can be an analogue, derivative or mutant and includes naturally occurring allelic variants and non-naturally occurring variants. Additions, deletions, substitutions and derivatizations of one or more of the nucleotides are contemplated so long as the modifications do not result in loss of functional activity

of the fragment or variant. Preferably the functionally active fragment or variant has at least approximately 80% identity to the functional part of the above mentioned sequence, more preferably at least approximately 90% identity, most preferably at least approximately 95% identity. Such functionally active variants and fragments include, for example, those having nucleic acid changes which result in conservative amino acid substitutions of one or more residues in the corresponding amino acid sequence. Preferably the fragment has a size of at least 30 nucleotides, more preferably at least 45 nucleotides, most preferably at least 60 nucleotides.

By "functionally active" in respect of a polypeptide it is meant that the fragment or variant has one or more of the biological properties of the proteins CS, CS-like, MDH, MDH-like, PEPC and PEPC-like. A variant in this context includes additions, deletions, substitutions and derivatizations of one or more of the amino acids are contemplated so long as the modifications do not result in loss of functional activity of the fragment or variant. Preferably the functionally active fragment or variant has at least approximately 60% identity to the functional part of the above mentioned sequence, more preferably at least approximately 80% identity, most preferably at least approximately 90% identity. Such functionally active variants and fragments include, for example, those having conservative amino acid substitutions of one or more residues in the corresponding amino acid sequence. Preferably the fragment has a size of at least 10 amino acids, more preferably at least 15 amino acids, most preferably at least 20 amino acids.

The term "construct" as used herein refers to an artificially assembled or isolated nucleic acid molecule which includes the gene of interest. In general a construct may include the gene or genes of interest, a marker gene which in some cases can also be the gene of interest and appropriate regulatory sequences. It should be appreciated that the inclusion of regulatory sequences in a construct is optional, for example, such sequences may not be required in situations where the regulatory sequences of a host cell are to be used. The term construct includes vectors but should not be seen as being limited thereto.

The term "vector" as used herein encompasses both cloning and expression vectors. Vectors are often recombinant molecules containing nucleic acid molecules from several sources.

By "operatively linked" in respect of a regulatory element, nucleic acid or nucleic acid fragment and terminator, it meant that the regulatory element is capable of causing expression of said nucleic acid or nucleic acid fragment in a plant cell and said terminator is capable of terminating expression of said nucleic acid or nucleic acid fragment in a plant cell. Preferably, said regulatory element is upstream of said nucleic acid or nucleic acid fragment and said terminator is downstream of said nucleic acid or nucleic acid fragment.

By "an effective amount" of a nucleic acid or nucleic acid fragment it is meant an amount sufficient to result in an identifiable phenotypic trait in said plant, or a plant, plant seed or other plant part derived therefrom. Such amounts can be readily determined by an appropriately skilled person, taking into account the type of plant, the route of administration and other relevant factors. Such a person will readily be able to determine a suitable amount and method of administration. See, for example, Maniatis et al, Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratory, Cold Spring Harbor, the entire disclosure of which is incorporated herein by reference.

It will also be understood that the term "comprises" (or its grammatical variants) as used in this specification is equivalent to the term "includes" and should not be taken as excluding the presence of other elements or features.

Such nucleic acids or nucleic acid fragments could be assembled to form a consensus contig. As used herein, the term "consensus contig" refers to a nucleotide sequence that is assembled from two or more constituent nucleotide sequences that share common or overlapping regions of sequence homology. For example, the nucleotide sequence of two or more nucleic acids or nucleic acid fragments can be compared and aligned in order to identify common or overlapping sequences. Where common or overlapping sequences exist between two or more nucleic acids or nucleic acid fragments, the sequences (and thus their corresponding nucleic acids or nucleic acid fragments) can be assembled into a single contiguous nucleotide sequence.

In a preferred embodiment of this aspect of the invention, the substantially purified or isolated nucleic acid or nucleic acid fragment encodes a CS or CS-like polypeptide and including a nucleotide sequence selected from the group consisting of (a) sequences shown in Figures 1, 3, 4, 6, 7, 9, 99, 101, 102, 104,

114, 118 and 122 hereto (SEQ ID NOS 1, 3 to 10, 11, 13 to 16, 17, 19, 327, 329 to 335, 336, 338 to 344, 349, 351, 353 respectively); (b) complements of the sequences recited in (a); (c) sequences antisense to the sequences recited in (a) and (b); (d) functionally active fragments and variants of the sequences recited in (a), (b) and (c); and (e) RNA sequences corresponding to the sequences recited in (a), (b), (c) and (d).

In a further preferred embodiment of this aspect of the invention, the substantially purified or isolated nucleic acid or nucleic acid fragment encodes a MDH or MDH-like polypeptide and including a nucleotide sequence selected from the group consisting of (a) sequence shown in Figures 11, 13, 14, 16, 17, 19, 21, 23, 25, 26, 28, 30, 31, 33, 35, 37, 38, 40, 55, 57, 58, 60, 61, 63, 64, 66, 67, 69, 70, 72, 73, 75, 76, 78, 79, 81, 82 and 84 hereto (SEQ ID NOS. 21, 23 to 29; 30, 32 to 33, 34, 36, 38, 40, 42 to 43, 44, 46, 48 to 110, 111, 113, 115, 117 to 182, 183, 185, 205, 207 to 217, 218, 220 to 251, 252, 254 to 270, 271, 273 to 275, 276, 278 to 287, 288, 290 to 292, 293, 295 to 296, 297, 299 to 301, 304 to 305, 306, 308); (b) complements of the sequences recited in (a); (c) sequences antisense to the sequences recited in (a) and (b); (d) functionally active fragments and variants of the sequences recited in (a), (b) and (c); and (e) RNA sequences corresponding to the sequences recited in (a), (b), (c) and (d).

In a further preferred embodiment of this aspect of the invention, the substantially purified or isolated nucleic acid or nucleic acid fragment encodes a PEPC or PEPC-like polypeptide and including a nucleotide sequence selected from the group consisting of (a) sequences shown in Figures 42, 44, 46, 47, 49, 51, 53, 86, 88, 89, 91, 92, 94, 95, 97 and 110 hereto (SEQ ID NOS 187, 189, 191 to 197, 199, 201, 203, 310, 312 to 314, 315, 317 to 318, 319, 321 to 322, 323, 325 and 347 respectively); (b) complements of the sequences recited in (a); (c) sequences antisense to the sequences recited in (a) and (b); (d) functionally active fragments and variants of the sequences recited in (a), (b) and (c); and (e) RNA sequences corresponding to the sequences recited in (a), (b), (c) and (d).

Nucleic acids or nucleic acid fragments encoding at least a portion of several CS, MDH and PEPC polypeptides have been isolated and identified. Genes encoding other CS or CS-like, MDH or MDH-like and PEPC or PEPC-like proteins, either as cDNAs or genomic DNAs, may be isolated directly by using all

or a portion of the nucleic acids or nucleic acid fragments of the present invention as hybridisation probes to screen libraries from the desired plant employing the methodology well known to those skilled in the art. Specific oligonucleotide probes based upon the nucleic acid sequences of the present invention may be designed and synthesized by methods known in the art. Moreover, the entire sequences may be used directly to synthesize DNA probes by methods known to the skilled artisan such as random primer DNA labelling, nick translation, or end-labelling techniques, or RNA probes using available *in vitro* transcription systems. In addition, specific primers may be designed and used to amplify a part or all of the sequences of the present invention. The resulting amplification products may be labelled directly during amplification reactions or labelled after amplification reactions, and used as probes to isolate full-length cDNA or genomic fragments under conditions of appropriate stringency.

In addition, short segments of the nucleic acids or nucleic acid fragments of the present invention may be used in protocols to amplify longer nucleic acids or nucleic acid fragments encoding homologous genes from DNA or RNA. For example, polymerase chain reaction may be performed on a library of cloned nucleic acid fragments wherein the sequence of one primer is derived from the nucleic acid sequences of the present invention, and the sequence of the other primer takes advantage of the presence of the polyadenylic acid tracts to the 3' end of the mRNA precursor encoding plant genes. Alternatively, the second primer sequence may be based upon sequences derived from the cloning vector. For example, those skilled in the art can follow the RACE protocol (Frohman *et al.* (1988) *Proc. Natl. Acad. Sci. USA* 85:8998, the entire disclosure of which is incorporated herein by reference) to generate cDNAs by using PCR to amplify copies of the region between a single point in the transcript and the 3' or 5' end. Using commercially available 3' RACE and 5' RACE systems (BRL), specific 3' or 5' cDNA fragments may be isolated (Ohara *et al.* (1989) *Proc. Natl. Acad. Sci. USA* 86:5673; Loh *et al.* (1989) *Science* 243:217, the entire disclosures of which are incorporated herein by reference). Products generated by the 3' and 5' RACE procedures may be combined to generate full-length cDNAs.

In a further aspect of the present invention there is provided a substantially purified or isolated polypeptide from a clover (*Trifolium*), medic (*Medicago*),

ryegrass (*Lolium*) or fescue (*Festuca*) species, selected from the group consisting of CS or CS-like, MDH or MDH-like and PEPC or PEPC-like polypeptides; and functionally active fragments and variants of these polypeptides.

The clover (*Trifolium*), medic (*Medicago*), ryegrass (*Lolium*) or fescue
5 (*Festuca*) species may be of any suitable type, including white clover (*Trifolium repens*), red clover (*Trifolium pratense*), subterranean clover (*Trifolium subterraneum*), alfalfa (*Medicago sativa*), Italian or annual ryegrass (*Lolium multiflorum*), perennial ryegrass (*Lolium perenne*), tall fescue (*Festuca arundinacea*), meadow fescue (*Festuca pratensis*) and red fescue (*Festuca rubra*).
10 Preferably the species is a clover or a ryegrass, more preferably white clover (*T. repens*) or perennial ryegrass (*L. perenne*).

In a preferred embodiment of this aspect of the invention, the substantially purified or isolated CS or CS-like polypeptide includes an amino acid sequence selected from the group consisting of sequences shown in Figures 2, 5, 8, 10, 100,
15 103, 115, 119, 123 hereto (SEQ ID NOS 2, 12, 18, 20, 328, 337, 350, 352 and 354 respectively); and functionally active fragments and variants thereof.

In a further preferred embodiment of this aspect of the invention, the substantially purified or isolated MDH or MDH-like polypeptide includes an amino acid sequence selected from the group consisting of sequences shown in Figures
20 12, 15, 18, 20, 22, 24, 27, 29, 32, 34, 36, 39, 41, 56, 59, 62, 65, 68, 71, 74, 77, 80, 83 and 85 hereto (SEQ ID NOS 22, 31, 35, 37, 39, 41, 45, 47, 112, 114, 116, 184, 186, 206, 219, 253, 272, 277, 289, 294, 297, 303, 307 and 309, respectively) and functionally active fragments and variants thereof.

In a further preferred embodiment of this aspect of the invention, the
25 substantially purified or isolated PEPC or PEPC-like polypeptide includes an amino acid sequence selected from the group consisting of sequences shown in Figures 43, 45, 48, 50, 52, 54, 87, 90, 93, 96, 98 and 111 hereto (SEQ ID NOS 188, 190, 198, 200, 202, 204, 311, 316, 320, 324, 326, and 348, respectively); and functionally active fragments and variants thereof.

30 In a further embodiment of this aspect of the invention, there is provided a polypeptide produced (e.g. recombinantly) from a nucleic acid or nucleic acid

fragment according to the present invention. Techniques for recombinantly producing polypeptides are known to those skilled in the art.

Availability of the nucleotide sequences of the present invention and deduced amino acid sequences facilitates immunological screening of cDNA expression libraries. Synthetic peptides representing portions of the instant amino acid sequences may be synthesized. These peptides may be used to immunise animals to produce polyclonal or monoclonal antibodies with specificity for peptides and/or proteins including the amino acid sequences. These antibodies may be then used to screen cDNA expression libraries to isolate full-length cDNA clones of interest.

A genotype is the genetic constitution of an individual or group. Variations in genotype are important in commercial breeding programs, in determining parentage, in diagnostics and fingerprinting, and the like. Genotypes can be readily described in terms of genetic markers. A genetic marker identifies a specific region or locus in the genome. The more genetic markers, the finer defined is the genotype. A genetic marker becomes particularly useful when it is allelic between organisms because it then may serve to unambiguously identify an individual. Furthermore, a genetic marker becomes particularly useful when it is based on nucleic acid sequence information that can unambiguously establish a genotype of an individual and when the function encoded by such nucleic acid is known and is associated with a specific trait. Such nucleic acids and/or nucleotide sequence information including single nucleotide polymorphisms (SNPs), variations in single nucleotides between allelic forms of such nucleotide sequence, may be used as perfect markers or candidate genes for the given trait.

Applicants have identified a number of SNPs of the nucleic acids or nucleic acid fragments of the present invention. These are indicated (marked with grey on the black background) in the figures that show multiple alignments of nucleotide sequences of nucleic acid fragments contributing to consensus contig sequences. See for example, Figures 3, 6, 9, 13, 16, 30, 37, 57, 60, 63, 79, 89, 92 and 104 hereto.

Accordingly, in a further aspect of the present invention, there is provided a substantially purified or isolated nucleic acid or nucleic acid fragment including a single nucleotide polymorphism (SNP) from a nucleic acid or nucleic acid fragment

according to the present invention, for example a SNP from a nucleic acid sequence shown in Figures 3, 6, 9, 13, 16, 30, 37, 57, 60, 63, 66, 67, 72, 78, 88, 94, 101 and 104 hereto; or complements or sequences antisense thereto, and functionally active fragments and variants thereof. The invention further provides a
5 substantially purified or isolated nucleic acid or nucleic acid fragment including a single nucleotide polymorphism (SNP) isolated by the method of this invention.

In a still further aspect of the present invention there is provided a method of isolating a nucleic acid or nucleic acid fragment of the present invention including a SNP, said method including sequencing nucleic acid fragments from a
10 nucleic acid library. The method includes the step of identifying the SNP.

The nucleic acid library may be of any suitable type and is preferably a cDNA library.

The nucleic acid or nucleic acid fragment may be isolated from a recombinant plasmid or may be amplified, for example using polymerase chain
15 reaction.

The sequencing may be performed by techniques known to those skilled in the art.

In a still further aspect of the present invention, there is provided use of the nucleic acids or nucleic acid fragments of the present invention including SNPs,
20 and/or nucleotide sequence information thereof, as molecular genetic markers.

In a still further aspect of the present invention there is provided use of a nucleic acid or nucleic acid fragment of the present invention, and/or nucleotide sequence information thereof, as a molecular genetic marker.

More particularly, nucleic acids or nucleic acid fragments according to the
25 present invention and/or nucleotide sequence information thereof may be used as a molecular genetic marker for quantitative trait loci (QTL) tagging, QTL mapping, DNA fingerprinting and in marker assisted selection, particularly in clovers, alfalfa, ryegrasses and fescues. Even more particularly, nucleic acids or nucleic acid fragments according to the present invention and/or nucleotide sequence
30 information thereof may be used as molecular genetic markers in plant improvement in relation to plant tolerance to abiotic stresses such aluminium toxic acid soils; in relation to nutrient acquisition efficiency including phosphorus; in

relation to nitrogen fixation; in relation to nodulation. Even more particularly, sequence information revealing SNPs in allelic variants of the nucleic acids or nucleic acid fragments of the present invention and/or nucleotide sequence information thereof may be used as molecular genetic markers for QTL tagging
5 and mapping and in marker assisted selection, particularly in clovers, alfalfa, ryegrasses and fescues.

In a still further aspect of the present invention there is provided a construct or vector including a nucleic acid or nucleic acid fragment according to the present invention.

10 In a particularly preferred embodiment the construct or vector may include nucleic acids or nucleic acid fragments encoding both CS or CS-like and MDH or MDH-like polypeptides.

In yet another preferred embodiment the construct or vector may include nucleic acids or nucleic acid fragments encoding both MDH or MDH-like and
15 PEPC or PEPC-like polypeptides.

In yet another preferred embodiment the construct or vector may include both CS or CS-like and PEPC or PEPC-like polypeptides.

In another preferred embodiment the construct or vector may include nucleic acids or nucleic acid fragments encoding all three of CS or CS-like, MDH
20 or MDH-like and PEPC or PEPC-like polypeptides.

In a preferred embodiment of this aspect of the invention, the vector may include one or more regulatory element such as a promoter, one or more nucleic acids or nucleic acid fragments according to the present invention and one or more terminators; said one or more regulatory elements, one or more nucleic
25 acids or nucleic acid fragments and one or more terminators being operatively linked.

In a preferred embodiment of the present invention the vector may contain nucleic acids or nucleic acid fragments encoding both CS or CS-like and MDH or MDH-like polypeptides, operatively linked to a regulatory element or regulatory
30 elements, such that both CS or CS-like and MDH or MDH-like polypeptides are expressed.

In another preferred embodiment of the present invention the vector may contain nucleic acids or nucleic acid fragments encoding both CS or CS-like and PEPC or PEPC-like polypeptides, operatively linked to a regulatory element or regulatory elements, such that both CS or CS-like and PEPC or PEPC-like polypeptides are expressed.

In yet another particularly preferred embodiment of the present invention the vector or construct may contain nucleic acids or nucleic acid fragments encoding both MDH or MDH-like and PEPC or PEPC-like polypeptides, operatively linked to a regulatory element or regulatory elements, such that both MDH or MDH-like and PEPC or PEPC-like polypeptides are expressed.

In another particularly preferred embodiment of the present invention the vector may contain nucleic acids or nucleic acid fragments encoding all three of CS or CS-like, MDH or MDH-like and PEPC or PEPC-like, operatively linked to a regulatory element or regulatory elements, such that all three of CS or CS-like, MDH or MDH-like and PEPC or PEPC-like polypeptides are expressed.

The vector may be of any suitable type and may be viral or non-viral. The vector may be an expression vector. Such vectors include chromosomal, non-chromosomal and synthetic nucleic acid sequences, eg. derivatives of plant viruses; bacterial plasmids; derivatives of the Ti plasmid from *Agrobacterium tumefaciens*, derivatives of the Ri plasmid from *Agrobacterium rhizogenes*; phage DNA; yeast artificial chromosomes; bacterial artificial chromosomes; binary bacterial artificial chromosomes; vectors derived from combinations of plasmids and phage DNA. However, any other vector may be used as long as it is replicable, integrative or viable in the plant cell.

The regulatory element and terminator may be of any suitable type and may be endogenous to the target plant cell or may be exogenous, provided that they are functional in the target plant cell.

Preferably the regulatory element is a promoter. A variety of promoters which may be employed in the vectors of the present invention are well known to those skilled in the art. Factors influencing the choice of promoter include the desired tissue specificity of the vector, and whether constitutive or inducible expression is desired and the nature of the plant cell to be transformed (eg.

monocotyledon or dicotyledon). Particularly suitable constitutive promoters include the Cauliflower Mosaic Virus 35S (CaMV 35S) promoter, the maize Ubiquitin promoter, and the rice Actin promoter. Particularly suitable tissue-specific promoters include root-prevalent promoters.

5 A variety of terminators which may be employed in the vectors of the present invention are also well known to those skilled in the art. The terminator may be from the same gene as the promoter sequence or a different gene. Particularly suitable terminators are polyadenylation signals, such as the CaMV 35S polyA and other terminators from the nopaline synthase (*nos*) and the
10 octopine synthase (*ocs*) genes.

The vector, in addition to the regulatory element, the nucleic acid or nucleic acid fragment of the present invention and the terminator, may include further elements necessary for expression of the nucleic acid or nucleic acid fragment, in different combinations, for example vector backbone, origin of replication (*ori*),
15 multiple cloning sites, spacer sequences, enhancers, introns (such as the maize Ubiquitin *Ubi* intron), antibiotic resistance genes and other selectable marker genes [such as the neomycin phosphotransferase (*npt2*) gene, the hygromycin phosphotransferase (*hph*) gene, the phosphinothricin acetyltransferase (*bar* or *pat*) gene, the phospho-mannose isomerase (*pmi*) gene], and reporter genes (such as
20 beta-glucuronidase (GUS) gene (*gusA*)). The vector may also contain a ribosome binding site for translation initiation. The vector may also include appropriate sequences for amplifying expression.

As an alternative to use of a selectable marker gene to provide a phenotypic trait for selection of transformed host cells, the presence of the vector
25 in transformed cells may be determined by other techniques well known in the art, such as PCR (polymerase chain reaction), Southern blot hybridisation analysis, histochemical GUS assays, northern and Western blot hybridisation analyses.

Those skilled in the art will appreciate that the various components of the vector are operatively linked, so as to result in expression of said nucleic acid or
30 nucleic acid fragment. Techniques for operatively linking the components of the vector of the present invention are well known to those skilled in the art. Such techniques include the use of linkers, such as synthetic linkers, for example including one or more restriction enzyme sites.

The vectors of the present invention may be incorporated into a variety of plants, including monocotyledons (such as grasses from the genera *Lolium*, *Festuca*, *Paspalum*, *Pennisetum*, *Panicum* and other forage and turfgrasses, corn, oat, sugarcane, wheat and barley), dicotyledons (such as *Arabidopsis*, tobacco, clovers, medics, eucalyptus, potato, sugarbeet, canola, soybean, chickpea) and gymnosperms. In a preferred embodiment, the vectors may be used to transform monocotyledons, preferably grass species such as ryegrasses (*Lolium* species) and fescues (*Festuca* species), more preferably perennial ryegrass, including forage- and turf-type cultivars. In an alternate preferred embodiment, the vectors may be used to transform dicotyledons, preferably forage legume species such as clovers (*Trifolium* species) and medics (*Medicago* species), more preferably white clover (*Trifolium repens*), red clover (*Trifolium pratense*), subterranean clover (*Trifolium subterraneum*) and alfalfa (*Medicago sativa*). Clovers, alfalfa and medics are key pasture legumes in temperate climates throughout the world.

Techniques for incorporating the vectors of the present invention into plant cells (for example by transduction, transfection or transformation) are known to those skilled in the art. Such techniques include *Agrobacterium* mediated introduction, electroporation to tissues, cells and protoplasts, protoplast fusion, injection into reproductive organs, injection into immature embryos and high velocity projectile introduction to cells, tissues, calli, immature and mature embryos. The choice of technique will depend largely on the type of plant to be transformed.

Cells incorporating the vectors of the present invention may be selected, as described above, and then cultured in an appropriate medium to regenerate transformed plants, using techniques well known in the art. The culture conditions, such as temperature, pH and the like, will be apparent to the person skilled in the art. The resulting plants may be reproduced, either sexually or asexually, using methods well known in the art, to produce successive generations of transformed plants.

In a further aspect of the present invention there is provided a plant cell, plant, plant seed or other plant part, including, e.g. transformed with, a vector, nucleic acid or nucleic acid fragment of the present invention.

The plant cell, plant, plant seed or other plant part may be from any suitable species, including monocotyledons, dicotyledons and gymnosperms. In a preferred embodiment the plant cell, plant, plant seed or other plant part may be from a monocotyledon, preferably a grass species, more preferably a ryegrass
5 (*Lolium* species) or fescue (*Festuca* species), more preferably perennial ryegrass, including both forage- and turf-type cultivars. In an alternate preferred embodiment the plant cell, plant, plant seed or other plant part may be from a dicotyledon, preferably forage legume species such as clovers (*Trifolium* species) and medics (*Medicago* species), more preferably white clover (*Trifolium repens*), red clover
10 (*Trifolium pratense*), subterranean clover (*Trifolium subterraneum*) and alfalfa (*Medicago sativa*).

The present invention also provides a plant, plant seed or other plant part, or a plant extract derived from a plant cell of the present invention.

The present invention also provides a plant, plant seed or other plant part,
15 or a plant extract derived from a plant of the present invention.

In a further aspect of the present invention there is provided a method of modifying organic acid biosynthesis; of modifying organic acid secretion; of modifying phosphorous and other nutrients acquisition efficiency in plants; of modifying aluminium and acid soil tolerance in plants; of modifying nitrogen
20 fixation and nodule function, said method including introducing into said plant an effective amount of a nucleic acid or nucleic acid fragment according to the present invention. Preferably the nucleic acid or nucleic acid fragment is part of a vector.

Using the methods and products of the present invention, organic acid
25 biosynthesis; organic acid secretion; phosphorous and other plant nutrient acquisition efficiency; aluminium and acid soil tolerance; nitrogen fixation and nodule function, may be increased or otherwise altered, for example by incorporating additional copies of a sense nucleic acid or nucleic acid fragment of the present invention. They may be decreased or otherwise altered, for example
30 by incorporating an antisense nucleic acid or nucleic acid fragment of the present invention.

In a particularly preferred embodiment the method may include introducing into said plant nucleic acids or nucleic acid fragments encoding both CS or CS-like and MDH or MDH-like polypeptides.

5 In another preferred embodiment the method may include introducing into said plant nucleic acids or nucleic acid fragments encoding both CS or CS-like and PEPC or PEPC polypeptides.

In yet another preferred embodiment the method may include introducing into said plant nucleic acids or nucleic acid fragments encoding both MDH or MDH-like and PEPC or PEPC-like polypeptides.

10 In an even more preferred embodiment the method may include introducing into said plant nucleic acids or nucleic acid fragments encoding all three of CS or CS-like, MDH or MDH-like and PEPC or PEPC-like polypeptides.

The present invention will now be more fully described with reference to the accompanying Examples and drawings. It should be understood, however, that the
15 description following is illustrative only and should not be taken in any way as a restriction on the generality of the invention described above.

In the Figures

Figure 1 shows the consensus contig nucleotide sequence of LpCSa.

Figure 2 shows the deduced amino acid sequence of LpCSa.

20 Figure 3 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence LpCSa.

Figure 4 shows the consensus contig nucleotide sequence of LpCSb.

Figure 5 shows the deduced amino acid sequence of LpCSb.

25 Figure 6 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence LpCSb.

Figure 7 shows the nucleotide sequence of LpCSc.

Figure 8 shows the deduced amino acid sequence of LpCSc.

Figure 9 shows the nucleotide sequence of LpCSd.

Figure 10 shows the deduced amino acid sequence of LpCSd.

Figure 11 shows the consensus contig nucleotide sequence of LpMDHa.

Figure 12 shows the deduced amino acid sequence of LpMDHa.

Figure 13 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence LpMDHa.

5 Figure 14 shows the consensus contig nucleotide sequence of LpMDHb.

Figure 15 shows the deduced amino acid sequence of LpMDHb.

Figure 16 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence LpMDHb.

Figure 17 shows the nucleotide sequence of LpMDHc.

10 Figure 18 shows the deduced amino acid sequence of LpMDHc.

Figure 19 shows the nucleotide sequence of LpMDHd.

Figure 20 shows the deduced amino acid sequence of LpMDHd.

Figure 21 shows the nucleotide sequence of LpMDHe.

Figure 22 shows the deduced amino acid sequence of LpMDHe.

15 Figure 23 shows the consensus contig nucleotide sequence of LpMDHf.

Figure 24 shows the deduced amino acid sequence of LpMDHf.

Figure 25 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence LpMDHf.

Figure 26 shows the nucleotide sequence of LpMDHg.

20 Figure 27 shows the deduced amino acid sequence of LpMDHg.

Figure 28 shows the consensus contig nucleotide sequence of LpMDHh.

Figure 29 shows the deduced amino acid sequence of LpMDHh.

Figure 30 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence LpMDHh.

25 Figure 31 shows the nucleotide sequence of LpMDHi.

Figure 32 shows the deduced amino acid sequence of LpMDHi.

Figure 33 shows the nucleotide sequence of LpMDHj.

Figure 34 shows the deduced amino acid sequence of LpMDHj.

Figure 35 shows the consensus contig nucleotide sequence of LpMDHk.

Figure 36 shows the deduced amino acid sequence of LpMDHk.

Figure 37 shows the nucleotide sequences of the nucleic acid fragments
5 contributing to the consensus contig sequence LpMDHk.

Figure 38 shows the nucleotide sequence of LpMDHl.

Figure 39 shows the deduced amino acid sequence of LpMDHl.

Figure 40 shows the nucleotide sequence of LpMDHm.

Figure 41 shows the deduced amino acid sequence of LpMDHm.

10 Figure 42 shows the nucleotide sequence of LpPEPCa.

Figure 43 shows the deduced amino acid sequence of LpPEPCa.

Figure 44 shows the consensus contig nucleotide sequence of LpPEPCb.

Figure 45 shows the deduced amino acid sequence of LpPEPCb.

Figure 46 shows the nucleotide sequences of the nucleic acid fragments
15 contributing to the consensus contig sequence LpPEPCb.

Figure 47 shows the nucleotide sequence of LpPEPCc.

Figure 48 shows the deduced amino acid sequence of LpPEPCc.

Figure 49 shows the nucleotide sequence of LpPEPCd.

Figure 50 shows the deduced amino acid sequence of LpPEPCd.

20 Figure 51 shows the nucleotide sequence of LpPEPce.

Figure 52 shows the deduced amino acid sequence of LpPEPce.

Figure 53 shows the nucleotide sequence of LpPEPCf.

Figure 54 shows the deduced amino acid sequence of LpPEPCf.

Figure 55 shows the consensus contig nucleotide sequence of TrMDHa.

25 Figure 56 shows the deduced amino acid sequence of TrMDHa.

Figure 57 shows the nucleotide sequences of the nucleic acid fragments
contributing to the consensus contig sequence TrMDHa.

Figure 58 shows the consensus contig nucleotide sequence of TrMDHb.

Figure 59 shows the deduced amino acid sequence of TrMDHb.

Figure 60 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHb.

5 Figure 61 shows the consensus contig nucleotide sequence of TrMDHc.

Figure 62 shows the deduced amino acid sequence of TrMDHc.

Figure 63 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHc.

Figure 64 shows the consensus contig nucleotide sequence of TrMDHd.

10 Figure 65 shows the deduced amino acid sequence of TrMDHd.

Figure 66 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHd.

Figure 67 shows the consensus contig nucleotide sequence of TrMDHe.

Figure 68 shows the deduced amino acid sequence of TrMDHe.

15 Figure 69 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHe.

Figure 70 shows the consensus contig nucleotide sequence of TrMDHf.

Figure 71 shows the deduced amino acid sequence of TrMDHf.

20 Figure 72 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHf.

Figure 73 shows the consensus contig nucleotide sequence of TrMDHg.

Figure 74 shows the deduced amino acid sequence of TrMDHg.

Figure 75 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHg.

25 Figure 76 shows the consensus contig nucleotide sequence of TrMDHh.

Figure 77 shows the deduced amino acid sequence of TrMDHh.

Figure 78 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHh.

Figure 79 shows the consensus contig nucleotide sequence of TrMDHi.

Figure 80 shows the deduced amino acid sequence of TrMDHi.

Figure 81 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrMDHi.

5 Figure 82 shows the nucleotide sequence of TrMDHj.

Figure 83 shows the deduced amino acid sequence of TrMDHj.

Figure 84 shows the nucleotide sequence of TrMDHk.

Figure 85 shows the deduced amino acid sequence of TrMDHk.

Figure 86 shows the consensus contig nucleotide sequence of TrPEPCa.

10 Figure 87 shows the deduced amino acid sequence of TrPEPCa.

Figure 88 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrPEPCa.

Figure 89 shows the consensus contig nucleotide sequence of TrPEPCb.

Figure 90 shows the deduced amino acid sequence of TrPEPCb.

15 Figure 91 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrPEPCb.

Figure 92 shows the consensus contig nucleotide sequence of TrPEPCc.

Figure 93 shows the deduced amino acid sequence of TrPEPCc.

20 Figure 94 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrPEPCc.

Figure 95 shows the nucleotide sequence of TrPEPCd.

Figure 96 shows the deduced amino acid sequence of TrPEPCd.

Figure 97 shows the nucleotide sequence of TrPEPCe.

Figure 98 shows the deduced amino acid sequence of TrPEPCe.

25 Figure 99 shows the consensus contig nucleotide sequence of TrCSa.

Figure 100 shows the deduced amino acid sequence of TrCSa.

Figure 101 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrCSa.

Figure 102 shows the consensus contig nucleotide sequence of TrCSb.

Figure 103 shows the deduced amino acid sequence of TrCSb.

- 5 Figure 104 shows the nucleotide sequences of the nucleic acid fragments contributing to the consensus contig sequence TrCSb.

Figure 105 shows the plasmid map in pGEM-T Easy of TrMDH.

Figure 106 shows the nucleotide sequence of TrMDH.

Figure 107 shows the deduced amino acid sequence of TrMDH.

- 10 Figure 108 shows the plasmid map of sense construct of TrMDH in the binary vector pPZP221:35S².

Figure 109 shows the plasmid map in pGEM-T Easy of TrPEPC.

Figure 110 shows the nucleotide sequence of TrPEPC.

Figure 111 shows the deduced amino acid sequence of TrPEPC.

- 15 Figure 112 shows the plasmid map of sense construct of TrPEPC in the binary vector pPZP221:35S².

Figure 113 shows the plasmid map in pGEM-T Easy of TrCSa.

Figure 114 shows the nucleotide sequence of TrCSa.

Figure 115 shows the deduced amino acid sequence of TrCSa.

- 20 Figure 116 shows the plasmid map of sense construct of TrCSa in the binary vector pPZP221:35S².

Figure 117 shows the plasmid map in pGEM-T Easy of TrCSb.

Figure 118 shows the nucleotide sequence of TrCSb.

Figure 119 shows the deduced amino acid sequence of TrCSb.

- 25 Figure 120 shows the plasmid map of sense construct of TrCSb in the binary vector pPZP221:35S².

Figure 121 shows the plasmid map in pGEM-T Easy of TrCSd.

Figure 122 shows the nucleotide sequence of TrCSd.

Figure 123 shows the deduced amino acid sequence of TrCSd.

Figure 124 shows the plasmid map of sense construct of TrCSd in the binary vector pPZP221:35S².

Figure 125 shows the plasmid maps of the modular vector system comprising a
5 binary base vector and 7 auxiliary vectors.

Figure 126 shows an example of the modular binary transformation vector system comprising plasmid maps of the binary transformation vector backbone and 4 expression cassettes for combinatorial expression of chimeric CS and MDH and PEPC genes in auxiliary vectors (A) and the plasmid map of the T-DNA region of
10 the final binary transformation vector (B).

Figure 127 shows the results of RT-PCR experiments performed as described in Example 6. Samples were isolated from: L, leaf; S, stolon; St, stolon tip; R, root; Rt, root tip. -C: negative (no reverse transcriptase) control; +C, positive (plasmid) control. The numbers indicate cycle numbers. A: phosphate transporter homolog;
15 B: root iron transporter homolog.

Figure 128 shows the screening of a white clover BAC library using the phosphate transporter cDNA as a probe (A); Southern hybridisation blot of six BAC clones identified in A using the same probe (B); physical map of the phosphate transporter genomic region including the coding region and the promoter region
20 (C).

Figure 129 shows white clover cotyledons, various stages of selection of plantlets transformed with a binary transformation vector constructed as described in Examples 4 and 5, transgenic white clover on root-inducing medium, and white clover plants transformed with genes involved in organic acid biosynthesis.

25 Figure 130 shows the molecular analysis of transgenic white clover plants for the presence of the chimeric MDH gene with real time PCR amplification plot and agarose gel of PCR product.

Figure 131 shows the molecular analysis of transgenic white clover plants for the presence of the chimeric PEPC gene with real time PCR amplification plot and
30 agarose gel of PCR product.

Figure 132 shows the molecular analysis of transgenic white clover plants for the presence of the chimeric CS gene with real time PCR amplification plot and agarose gel of PCR product.

EXAMPLE 1

5 Preparation of cDNA libraries, isolation and sequencing of cDNAs coding for CS, CS-like, MDH, MDH-like, PEPC and PEPC-like polypeptides from white clover (*Trifolium repens*) and perennial ryegrass (*Lolium perenne*)

cDNA libraries representing mRNAs from various organs and tissues of white clover (*Trifolium repens*) and perennial ryegrass (*Lolium perenne*) were prepared. The characteristics of the white clover and perennial ryegrass libraries, respectively, are described below (Tables 1 and 2).

TABLE 1
cDNA libraries from white clover (*Trifolium repens*)

Library	Organ/Tissue
01wc	Whole seedling, light grown
02wc	Nodulated root 3, 5, 10, 14, 21 & 28 day old seedling
03wc	Nodules pinched off roots of 42 day old rhizobium inoculated white clover
04wc	Nodulated white clover cut leaf and stem collected after 0, 1, 4, 6 & 14 h after cutting
05wc	Non-nodulated Inflorescences: <50% open, not fully open and fully open
06wc	Dark grown etiolated
07wc	Inflorescence – very early stages, stem elongation, < 15 petals, 15-20 petals
08wc	seed frozen at –80°C, imbibed in dark overnight at 10°C
09wc	Drought stressed plants
10wc	AMV infected leaf
11wc	WCMV infected leaf

Library	Organ/Tissue
12wc	Phosphorus starved plants
13wc	Vegetative stolon tip
14wc	stolon root initials
15wc	Senescing stolon
16wc	Senescing leaf

TABLE 2
cDNA libraries from perennial ryegrass (*Lolium perenne*)

Library	Organ/Tissue
01rg	Roots from 3-4 day old light-grown seedlings
02rg	Leaves from 3-4 day old light-grown seedlings
03rg	Etiolated 3-4 day old dark-grown seedlings
04rg	Whole etiolated seedlings (1-5 day old and 17 days old)
05rg	Senescing leaves from mature plants
06rg	Whole etiolated seedlings (1-5 day old and 17 days old)
07rg	Roots from mature plants grown in hydroponic culture
08rg	Senescent leaf tissue
09rg	Whole tillers and sliced leaves (0, 1, 3, 6, 12 and 24 h after harvesting)
10rg	Embryogenic suspension-cultured cells
11rg	Non-embryogenic suspension-cultured cells
12rg	Whole tillers and sliced leaves (0, 1, 3, 6, 12 and 24 h after harvesting)
13rg	Shoot apices including vegetative apical meristems
14rg	Immature inflorescences including different stages of inflorescence

Library	Organ/Tissue
	meristem and inflorescence development
15rg	Defatted pollen
16rg	Leaf blades and leaf sheaths (<i>rbcL</i> , <i>rbcS</i> , <i>cab</i> , <i>wir2A</i> subtracted)
17rg	Senescing leaves and tillers
18rg	Drought-stressed tillers (pseudostems from plants subjected to PEG-simulated drought stress)
19rg	Non-embryogenic suspension-cultured cells subjected to osmotic stress (grown in media with half-strength salts) (1, 2, 3, 4, 5, 6, 24 and 48 h after transfer)
20rg	Non-embryogenic suspension-cultured cells subjected to osmotic stress (grown in media with double-strength salts) (1, 2, 3, 4, 5, 6, 24 and 48 h after transfer)
21rg	Drought-stressed tillers (pseudostems from plants subjected to PEG-simulated drought stress)
22rg	Spikelets with open and maturing florets
23rg	Mature roots (specific subtraction with leaf tissue)

The cDNA libraries may be prepared by any of many methods available. For example, total RNA may be isolated using the Trizol method (Gibco-BRL, USA) or the RNeasy Plant Mini kit (Qiagen, Germany), following the manufacturers' instructions. cDNAs may be generated using the SMART PCR
5 cDNA synthesis kit (Clontech, USA), cDNAs may be amplified by long distance polymerase chain reaction using the Advantage 2 PCR Enzyme system (Clontech, USA), cDNAs may be cleaned using the GeneClean spin column (Bio 101, USA), tailed and size fractionated, according to the protocol provided by Clontech. The
10 cDNAs may be introduced into the pGEM-T Easy Vector system 1 (Promega, USA) according to the protocol provided by Promega. The cDNAs in the pGEM-T Easy plasmid vector are transfected into *Escherichia coli* Epicurian coli XL10-Gold

ultra competent cells (Stratagene, USA) according to the protocol provided by Stratagene.

Alternatively, the cDNAs may be introduced into plasmid vectors for first preparing the cDNA libraries in Uni-ZAP XR vectors according to the manufacturer's protocol (Stratagene Cloning Systems, La Jolla, CA, USA). The Uni-ZAP XR libraries are converted into plasmid libraries according to the protocol provided by Stratagene. Upon conversion, cDNA inserts will be contained in the plasmid vector pBluescript. In addition, the cDNAs may be introduced directly into precut pBluescript II SK(+) vectors (Stratagene) using T4 DNA ligase (New England Biolabs), followed by transfection into *E. coli* DH10B cells according to the manufacturer's protocol (GIBCO BRL Products).

Once the cDNA inserts are in plasmid vectors, plasmid DNAs are prepared from randomly picked bacterial colonies containing recombinant plasmids, or the insert cDNA sequences are amplified via polymerase chain reaction using primers specific for vector sequences flanking the inserted cDNA sequences. Plasmid DNA preparation may be performed robotically using the Qiagen QiaPrep Turbo kit (Qiagen, Germany) according to the protocol provided by Qiagen. Amplified insert DNAs are sequenced in dye-terminator sequencing reactions to generate partial cDNA sequences (expressed sequence tags or "ESTs"). The resulting ESTs are analysed using an Applied Biosystems ABI 3700 sequence analyser.

EXAMPLE 2

DNA sequence analyses

The cDNA clones encoding CS, CS-like, MDH, MDH-like, PEPC and PEPC-like polypeptides were identified by conducting BLAST (Basic Local Alignment Search Tool; Altschul *et al.* (1993) *J. Mol. Biol.* 215:403-410) searches. The cDNA sequences obtained were analysed for similarity to all publicly available DNA sequences contained in the eBioinformatics nucleotide database using the BLASTN algorithm provided by the National Center for Biotechnology Information (NCBI). The DNA sequences were translated in all reading frames and compared for similarity to all publicly available protein sequences contained in the SWISS-PROT protein sequence database using BLASTx algorithm (v 2.0.1) (Gish and States (1993) *Nature Genetics* 3:266-272) provided by the NCBI.

The cDNA sequences obtained and identified were then used to identify additional identical and/or overlapping cDNA sequences generated using the BLASTN algorithm. The identical and/or overlapping sequences were subjected to a multiple alignment using the CLUSTALw algorithm, and to generate a consensus
5 contig sequence derived from this multiple sequence alignment. The consensus contig sequence was then used as a query for a search against the SWISS-PROT protein sequence database using the BLASTx algorithm to confirm the initial identification.

EXAMPLE 3

10 Identification and full-length sequencing of cDNAs encoding CS, MDH and PEPC polypeptides

To fully characterise for the purposes of the generation of probes for hybridisation experiments and the generation of transformation vectors, a set of cDNAs encoding white clover CS, MDH and PEPC polypeptides was identified
15 and fully sequenced.

Full-length cDNAs were identified from our EST sequence database using relevant published sequences (NCBI databank) as queries for BLAST searches. Full-length cDNAs were identified by alignment of the query and hit sequences using Sequencher (Gene Codes Corp., Ann Arbor, MI 48108, USA). The original
20 plasmid was then used to transform chemically competent XL-1 cells (prepared in-house, CaCl₂ protocol). After colony PCR (using HotStarTaq, Qiagen) a minimum of three PCR-positive colonies per transformation were picked for initial sequencing with M13F and M13R primers. The resulting sequences were aligned with the original EST sequence using Sequencher to confirm identity and one of
25 the three clones was picked for full-length sequencing, usually the one with the best initial sequencing result.

Sequencing of all cDNAs was completed by primer walking, i.e. oligonucleotide primers were designed to the initial sequence obtained using M13F and M13R oligonucleotide primers and used for further sequencing. The
30 sequences of the oligonucleotide primers are shown in Table 2.

Contigs were then assembled in Sequencher. The contigs include the sequences of the SMART primers used to generate the initial cDNA library as well

as pGEM-T Easy vector sequence up to the EcoRI cut site both at the 5' and 3' end.

Plasmid maps and the full cDNA sequences of TrCSa, TrCSb, TrCSd, TrMDH and TrPEPC polypeptides were obtained (Figures 1, 2, 5, 6, 9, 10, 13, 14, 5 17, 18, 21, 22, 25, 26, 29 and 30).

TABLE 3

List of primers used for sequencing of the full-length cDNAs encoding CS, MDH and PEPC

gene name	clone ID	sequencing primer	primer sequence (5'>3')
TrCSa	05wc1HsB08	05wc1HsB08.f1	TTGCCCCGAGGCTATACTGTGGC
		05wc1HsB08.f2	CAGCTCACCTAGTTGCTAG
		05wc1HsB08.f3	CCATGGCCTAATGTTGATGC
		05wc1HsB08.r1	TTGGCCTTTCAAGTGGCATTCC
		05wc1HsB08.r2	CAGAATGGGAGGCACGACTTC
		05wc1HsB08.r3	ATGTGAGCATAGTTTGCACC
TrCSb	05wc2HsD09	05wc2HsD09.f1	GACTGCCAGAAAACACTTCCAGG
		05wc2HsD09.f2	ATGACTGCTTTAGTGTGG
		05wc2HsD09.r1	CTCAAGTTTCTCCAGTGTGACAC
		05wc2HsD09.r2	TGACTTATGTATCCCACC
		05wc2HsD09.r3	GCTCTGAATGGTTTAGCTGG
TrCSd	10wc1BsF10	10wc1BsF10.f1	GCACTGCCTGTTTCTGCTCATCC
		10wc1BsF10.f2	AGCCAACTTATGAGGATAGC
		10wc1BsF10.r1	CTCCAATACTCCTCGCGACGCC
		10wc1BsF10.r2	AGGCACAACCTGGCCACTG
		10wc1BsF10.r3	ACGTTGCCACCTTCATGATC
TrMDH	13wc1NsD01	13wc1NsD01.f1	GTTGTTATACCTGCTGGTGT
		13wc1NsD01.r1	CTCACTCAACCCTTGAGAT
TrPEPC	15wc1DsH12	15wc1DsH12.f1	TCCTAAGAACTTGAAGAGCTCGG
		15wc1DsH12.f2	AGATGTTTGCTTACTAGC
		15wc1DsH12.r1	GCCAGCAGCAATACCCTTCATGG
		15wc1DsH12.r2	TTGCTTCTCAACTGTTCC

EXAMPLE 4

Development of binary transformation vectors containing chimeric genes with cDNA sequences encoding CS, MDH and PEPC

5 To alter the expression of the polypeptides involved in organic acid biosynthesis to improve phosphorus acquisition efficiency as well as aluminium and acid soil tolerance in forage plants, a set of sense binary transformation vectors was produced.

The pPZP221 binary transformation vector (Hajdukiewicz *et al.*, 1994) was
10 modified to contain the 35S² cassette from pKYLX71:35S² (Schardl *et al.*, 1987) as follows: pKYLX71:35S² was cut with ClaI. The 5' overhang was filled in using Klenow and the blunt end was A-tailed with Taq polymerase. After cutting with EcoRI, the 2kb fragment with an EcoRI-compatible and a 3'-A tail was gel-purified. pPZP221 was cut with HindIII and the resulting 5' overhang filled in and T-tailed
15 with Taq polymerase. The remainder of the original pPZP221 multi-cloning site was removed by digestion with EcoRI, and the expression cassette cloned into the EcoRI site and the 3' T overhang restoring the HindIII site. This binary vector contains between the left and right border the plant selectable marker gene aacC1 under the control of the 35S promoter and 35S terminator and the pKYLX71:35S²-
20 derived expression cassette with a CaMV 35S promoter with a duplicated enhancer region and an rbcS terminator.

A GATEWAY[®] cloning cassette (Invitrogen) was introduced into the multicloning site of the pPZP221:35S² vector obtained as described following the manufacturer's protocol.

25 cDNA fragments were generated by high fidelity PCR with a proofreading DNA polymerase using the original pGEM-T Easy plasmid cDNA as a template. The primers used (Table 3) contained *attB* sequences for use with recombinases utilising the GATEWAY[®] system (Invitrogen). The resulting PCR fragments were used in a recombination reaction with pDONR[®] vector (Invitrogen) to generate
30 entry vectors. In a further recombination reaction, the cDNAs encoding the open reading frame sequences were transferred from the entry vector to the GATEWAY[®]-enabled pPZP221:35S² vector.

The orientation of the constructs (sense or antisense) was checked by restriction enzyme digest and sequencing which also confirmed the correctness of the sequence. Transformation vectors containing chimeric genes using full-length open reading frame cDNAs encoding white clover TrCSa, TrCSb, TrCSd, TrMDH and TrPEPC proteins in sense orientation under the control of the CaMV 35S² promoter were generated (Figures 4, 8, 12, 16, 20, 24, 28 and 32).

TABLE 4

List of primers used to PCR-amplify the open reading frames of cDNAs encoding CS, MDH and PEPC

gene name	clone ID	primer	primer sequence (5'>3')
TrCSa	05wc1HsB08	05wc1HsB08f	GGGGACAAGTTTGTACAAAAAAGC AGGCTTGATCTTAATGGCGTTCTT TCG
		05wc1HsB08r	GGGGACCACTTTGTACAAGAAAGC TGGGTTTTCAATTTTAGGACGATG CG
TrCSb	05wc2HsD09	05wc2HsD09f	GGGGACAAGTTTGTACAAAAAAGC AGGCTTTGTTGATTGATCTTAATG GC
		05wc2HsD09r	GGGGACCACTTTGTACAAGAAAGC TGGGTTAGTAATCCACAGATAACC G
TrCSd	10wc1BsF10	10wc1BsF10f	GGGGACAAGTTTGTACAAAAAAGC AGGCTCTAGATTGTTGATTGATCT AAATGGC
		10wc1BsF10r	GGGGACCACTTTGTACAAGAAAGC TGGGTCTAGATTCAATTTTAGGAT GATGCACC
TrMDH	13wc1NsD01	13wc1NsD01f	GGGGACAAGTTTGTACAAAAAAGC AGGCTCTAGAAATCCCATTACCA TTCATTCC
		13wc1NsD01r	GGGGACCACTTTGTACAAGAAAGC TGGGTCTAGATTGACATTCTCTCG CATGGACGC
TrPEPC	15wc1DsH12	15wc1DsH12f	GGGGACAAGTTTGTACAAAAAAGC AGGCTTGAGAAGGAGTGAATTGCT CC
		15wc1DsH12r	GGGGACCACTTTGTACAAGAAAGC TGGGTATGATATCTTAGCACACAC TTAAC

5

EXAMPLE 5

Development of binary transformation vectors containing chimeric genes with a combination of 2 or more cDNA sequences encoding CS, MDH and PEPC

To alter the expression of the polypeptides involved in organic acid biosynthesis to improve phosphorus acquisition efficiency as well as aluminium

10

and acid soil tolerance in forage plants, a modular binary transformation vector system was used (Figure 125). The modular binary vector system enables simultaneous integration of up to seven transgenes the expression of which is controlled by individual promoter and terminator sequences into the plant genome
5 (Goderis *et al.*, 2002).

The modular binary vector system consists of a pPZP200-derived vector (Hajdukiewicz *et al.*, 1994) backbone containing within the T-DNA a number of unique restriction sites recognised by homing endonucleases. The same restriction sites are present in pUC18-based auxiliary vectors flanking standard
10 multicloning sites. Expression cassettes comprising a selectable marker gene sequence or a cDNA sequence to be introduced into the plant under the control of regulatory sequences like promoter and terminator can be constructed in the auxiliary vectors and then transferred to the binary vector backbone utilising the homing endonuclease restriction sites. Up to seven expression cassettes can thus
15 be integrated into a single binary transformation vector. The system is highly flexible and allows for any combination of cDNA sequence to be introduced into the plant with any regulatory sequence.

For example, a selectable marker cassette comprising the nos promoter and nos terminator regulatory sequences controlling the expression of the nptII
20 gene was PCR-amplified using a proofreading DNA polymerase from the binary vector pKYLX71:35S² and directionally cloned into the AgeI and NotI sites of the auxiliary vector pAUX3166. Equally, other selectable marker cassettes can be introduced into any of the auxiliary vectors.

In another example, the expression cassette from the binary vector pWM5
25 consisting of the ASSU promoter and the tob terminator was PCR-amplified with a proofreading DNA polymerase and directionally cloned into the AgeI and NotI sites of the auxiliary vector pAUX3169. Equally, other expression cassettes can be introduced into any of the auxiliary vectors.

In yet another example, the expression cassette from the direct gene
30 transfer vector pDH51 was cut using EcoRI and cloned directly into the EcoRI site of the auxiliary vector pAUX3132.

TABLE 5

List of primers used to PCR-amplify plant selectable marker cassettes and the regulatory elements used to control the expression of CS, MDH and PEPC genes

expression cassette	primer	primer sequence (5'>3')
nos::nptII-nos	forward	ATAATAACCGGTTGATCATGAGCGGAGAATTAAGGG
	reverse	ATAATAGCGGCCGCTAGTAACATAGATGACACCGCG
35S::aacC1-35S	forward	AATAGCGGCCGCGATTCTAGTACTGGATTTTGG
	reverse	AATAACCGGTACCCACGAAGGAGCATCGTGG
35S ² ::rbcS	forward	ATAATAACCGGTGCCCCGGGGATCTCCTTTGCC
	reverse	ATAATAGCGGCCGCATGCATGTTGTCAATCAATTGG
assu::tob	forward	TAATACCGGTAAATTTATTATGRGTTTTTTTCCG
	reverse	TAATGCGGCCGCTAAGGGCAGCCCATACAAATGAGC

5

The expression cassettes were further modified by introducing a GATEWAY[®] cloning cassette (Invitrogen) into the multicloning site of the respective pAUX vector following the manufacturer's protocol. In a recombination reaction, the cDNAs encoding the open reading frame sequences were transferred from the entry vector obtained as described in Example 4 to the GATEWAY[®]-enabled pAUX vector. Any combination of the regulatory elements with cDNA sequences of TrCSa, TrCSb, TrCSd, TrMDH and TrPEPC can be obtained. One typical example is given in Figure 126 with expression cassettes comprising the nptII plant selectable marker, TrPEPC, TrCSa and TrMDH.

Complete expression cassettes comprising any combination of regulatory elements and cDNA sequences to be introduced into the plant were then cut from the auxiliary vectors using the respective homing endonuclease and cloned into the respective restriction site on the binary vector backbone. After verification of the construct by nucleotide sequencing, the binary transformation vector

15

comprising a number of expression cassettes was used to generate transgenic white clover plants.

EXAMPLE 6

Isolation of regulatory elements to direct expression of chimeric genes encoding CS, MDH and PEPC involved in organic acid biosynthesis

To direct the expression of chimeric white clover genes TrCSa, TrCSb, TrCSd, TrMDH and TrPEPC involved in organic acid biosynthesis to specific tissues, regulatory elements showing specificity for expression in root or root tip tissue were identified and isolated.

Using the BLASTn algorithm, white clover EST sequence collections prepared as detailed in Examples 1 and 2 were searched with nucleotide sequences representing genes with known root-specific expression identified in GenBank as queries. Suitable candidate ESTs were identified and oligonucleotide primers for reverse transcription-PCR (RT-PCR) were designed (see Table 4).

TABLE 6

Oligonucleotide primers used in reverse transcription-PCR to confirm tissue specificity of candidate white clover ESTs

gene	forward primer (5'→3')	reverse primer (5'→3')
histone (internal control)	CCGATTCCGTTTCAATGGCTCGTA	GCCATCCTTAACCCTAAGCACGT
white clover phosphate transporter homolog	TTGCATTTGCTTGGAACAACACTAG	GCAAGAGCAAACATGAAACCA
white clover root iron transporter homolog	ATGGGTCTTGGTGGTTGCA	GCAGCAAGAAGATCAACCAAAGCCA

Total RNA for RT-PCR experiments was isolated from a leaf, stolon, stolon tip, root and root tip of white clover plants grown in the glasshouse using the TRIZOL method. Reverse transcription was performed using SuperScriptII (Invitrogen) following the supplier's instructions. Preliminary PCR reactions using Dynazyme as the DNA polymerase were set up to determine the correct amount of template using the PCR primers for the internal control (histone). The results of this preliminary PCR were used to set up another round of PCR to determine the optimum number of cycles for linear amplification. The final PCR amplifications

were performed using the following cycling conditions: 94 °C, 4 min., 1 time; 94 °C, 15 sec., 60 °C, 30 sec., 72 °C, 2 min., x times; 72 °C, 10 min., 1 time. The number of cycles in the amplification (x) was found to be dependent on the relative abundance of transcript and had to be optimised for each template.

- 5 RT-PCR results using a white clover histone gene as an internal constitutively expressed control confirmed the tissue-specificity of two candidate ESTs to be root-prevalent (Figure 127 A and B). These were a phosphate transporter homolog (clone name 02wc1DsG07) and a root iron transporter homolog (clone name 05wc1IsB11).
- 10 A spotted white clover BAC library consisting of 50,304 clones with an estimated 99% genome coverage (6.3 genome equivalents) was screened using the phosphate transporter homolog EST nucleotide sequence as a probe. A number of positive BAC clones could be identified (Figure 128 A). After Southern hybridisation blotting (Figure 128 B) a 7.5 kb EcoRV genomic DNA fragment was
- 15 selected and fully sequenced. The fragment contained the phosphate transporter homolog open reading frame and 4 kb of upstream sequence including the promoter region. A physical map of the genomic DNA fragment including the promoter region is shown in Figure 128 C.

EXAMPLE 7

- 20 **Production by *Agrobacterium*-mediated transformation and analysis of transgenic white clover plants carrying chimeric genes encoding CS, MDH and PEPC involved in organic acid biosynthesis**

A set of binary transformation vectors carrying chimeric white clover genes to alter the expression of the polypeptides involved in organic acid biosynthesis to

25 improve phosphorus acquisition efficiency as well as aluminium and acid soil tolerance in forage plants were produced as detailed in Examples 4 and 5.

Agrobacterium-mediated gene transfer experiments were performed using these transformation vectors.

- The production of transgenic white clover plants carrying the white clover
- 30 TrCSa, TrCSb, TrCSd, TrMDH and TrPEPC cDNAs, either singly or in combination, is described here in detail (Table 7).

Preparation of *Agrobacterium*

Agrobacterium tumefaciens strain AGL-1 transformed with one of the binary vector constructs detailed in Example 6 were streaked on LB medium containing 50 µg/ml rifampicin and 50 µg/ml kanamycin and grown at 27 °C for 48 hours. A single colony was used to inoculate 5 ml of LB medium containing 50 µg/ml rifampicin and 50 µg/ml kanamycin and grown over night at 27 °C and 250 rpm on an orbital shaker. The overnight culture was used as an inoculum for 500 ml of LB medium containing 50 µg/ml kanamycin only. Incubation was over night at 27 °C and 250 rpm on an orbital shaker in a 2 l Erlenmeyer flask.

10 Preparation of white clover seeds

1 spoon of seeds (ca. 500) was placed into a 280 µm mesh size sieve and washed for 5 min under running tap water, taking care not to wash seeds out of sieve. In a laminar flow hood, seeds were transferred with the spoon into an autoclaved 100 ml plastic culture vessel. A magnetic stirrer (wiped with 70% EtOH) and ca. 30 ml 70% EtOH were added, and the seeds were stirred for 5 min. The EtOH was discarded and replaced by 50 ml 1.5% sodium hypochlorite. The seeds were stirred for an additional 45 - 60 min on a magnetic stirrer. The sodium hypochlorite was then discarded and the seeds rinsed 3 to 4 times with autoclaved ddH₂O. Finally 30 ml of ddH₂O were added, and seeds incubated over night at 10 - 15°C in an incubator.

***Agrobacterium*-mediated transformation of white clover**

The seed coat and endosperm layer of the white clover seeds prepared as above were removed with a pair of 18 G or 21 G needles. The cotyledons were cut from the hypocotyl leaving a ca. 1.5 mm piece of the cotyledon stalk. The cotyledons were transferred to a petridish containing ddH₂O. After finishing the isolation of clover cotyledons, ddH₂O in the petridish was replaced with *Agrobacterium* suspension (diluted to an OD₆₀₀ = 0.2 - 0.4). The petridish was sealed with its lid and incubated for 40 min at room temperature.

After the incubation period, each cotyledon was transferred to paper towel using the small dissection needle, dried and plated onto regeneration medium RM73. The plates were incubated at 25°C with a 16h light/8h dark photoperiod. On day 4, the explants were transferred to fresh regeneration medium. Cotyledons

transformed with *Agrobacterium* were transferred to RM73 containing cefotaxime (antibacterial agent) and gentamycin. The dishes were sealed with Parafilm and incubated at 25°C under a 16/8 h photoperiod. Explants were subcultured every three weeks for a total of nine weeks onto fresh RM 73 containing cefotaxime and gentamycin. Shoots with a green base were then transferred to root-inducing medium RIM. Roots developed after 1 – 3 weeks, and plantlets were transferred to soil when the roots were well established.

Preparation of genomic DNA for real-time PCR and analysis for the presence of transgenes

3 – 4 leaves of white clover plants regenerated on selective medium were harvested and freeze-dried. The tissue was homogenised on a Retsch MM300 mixer mill, then centrifuged for 10 min at 1700xg to collect cell debris. Genomic DNA was isolated from the supernatant using Wizard Magnetic 96 DNA Plant System kits (Promega) on a Biomek FX (Beckman Coulter). 5 µl of the sample (50 µl) were then analysed on an agarose gel to check the yield and the quality of the genomic DNA.

Genomic DNA was analysed for the presence of the transgene by real-time PCR using SYBR Green chemistry. PCR primer pairs were designed using MacVector (Accelrys) or PrimerExpress (ABI). The forward primer was located within the 35S² promoter region and the reverse primer within the transgene to amplify products of approximately 150 - 250 bp as recommended. The positioning of the forward primer within the 35S² promoter region guaranteed that endogenous genes in white clover were not detected.

5 µl of each genomic DNA sample was run in a 50 µl PCR reaction including SYBR Green on an ABI 7700 (Applied Biosystems) together with samples containing DNA isolated from wild type white clover plants (negative control), samples containing buffer instead of DNA (buffer control) and samples containing the plasmid used for transformation (positive plasmid control). Cycling conditions used were 2 min. at 50 °C, 10 min. at 95 °C and then 40 cycles of 15 sec. at 95 °C, 1 min. at 60 °C.

Preparation of genomic DNA and analysis of DNA for presence and copy number of transgene by Southern hybridisation blotting

Genomic DNA for Southern hybridisation blotting was obtained from leaf material of white clover plants following the CTAB method. Southern hybridisation
5 blotting experiments were performed following standard protocols as described in Sambrook *et al.* (1989). In brief, genomic DNA samples were digested with appropriate restriction enzymes and the resulting fragments separated on an agarose gel. After transfer to a membrane, a cDNA fragment representing a transgene or selectable marker gene was used to probe the size-fractionated DNA
10 fragments. Hybridisation was performed with either radioactively labelled probes or using the non-radioactive DIG labelling and hybridisation protocol (Boehringer) following the manufacturer's instructions.

Plants were obtained after transformation with all chimeric constructs and selection on medium containing gentamycin. Details of plant analysis are given in
15 Table 5 and Figures 130, 131 and 132.

TABLE 7

Transformation of white clover with binary transformation vectors comprising cDNAs encoding CS, MDH and PEPC involved in organic acid biosyntheses, selection and molecular analysis of regenerated plants.

construct	cotyledons transformed	selection into RIM	soil	QPCR-positive	Southern	copy number range
pPZP221-35S2::TrMDH	2739	72	45	43	n/d	
pPZP221-35S2::TrCS	2550	39	7	nd	n/d	
pPZP221-35S2::TrPEPC	2730	44	10	nd	n/d	

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25 of foreign genes in plants. *Gene* **61**, 1-11

Finally, it is to be understood that various alterations, modifications and/or additions may be made without departing from the spirit of the present invention as outlined herein.

CLAIMS

1. A substantially purified or isolated nucleic acid or nucleic acid fragment encoding an organic acid biosynthesis enzyme polypeptide selected from the group consisting of a citrate synthase (CS) polypeptide; a CS-like polypeptide;
5 a malate dehydrogenase (MDH) polypeptide; a MDH-like polypeptide; a phosphoenolpyruvate carboxylase (PEPC) polypeptide; and a PEPC-like polypeptide; or a functionally active fragment or variant of such a polypeptide, from a clover (*Trifolium*), medic (*Medicago*), ryegrass (*Lolium*) or fescue (*Festuca*) species.
- 10 2. A nucleic acid or nucleic acid fragment wherein said nucleic acid or nucleic acid fragment is from white clover (*Trifolium repens*) or perennial ryegrass (*Lolium perenne*).
3. A nucleic acid or nucleic acid fragment encoding a CS or CS-like polypeptide and including a nucleotide sequence selected from the group
15 consisting of (a) sequences shown in Figures 1, 3, 4, 6, 7, 9, 99, 101, 102, 104, 114, 118 and 122 hereto (SEQ ID NOS 1, 3 to 10, 11, 13 to 16, 17, 19, 327, 329 to 335, 336, 338 to 344, 349, 351, 353 respectively); (b) complements of the sequences recited in (a); (c) sequences antisense to the sequences recited in (a) and (b); (d) functionally active fragments and variants of the sequences recited in
20 (a), (b) and (c); and (e) RNA sequences corresponding to the sequences recited in (a), (b), (c) and (d).
4. A nucleic acid or nucleic acid fragment encoding a MDH or MDH-like polypeptide and including a nucleotide sequence selected from the group
25 consisting of (a) sequence shown in Figures 11, 13, 14, 16, 17, 19, 21, 23, 25, 26, 28, 30, 31, 33, 35, 37, 38, 40, 55, 57, 58, 60, 61, 63, 64, 66, 67, 69, 70, 72, 73, 75, 76, 78, 79, 81, 82 and 84 hereto (SEQ ID NOS 21, 23 to 29; 30, 32 to 33, 34, 36, 38, 40, 42 to 43, 44, 46, 48 to 110, 111, 113, 115, 117 to 182, 183, 185, 205, 207 to 217, 218, 220 to 251, 252, 254 to 270, 271, 273 to 275, 276, 278 to 287, 288, 290 to 292, 293, 295 to 296, 297, 299 to 301, 304 to 305, 306, 308); (b)
30 complements of the sequences recited in (a); (c) sequences antisense to the sequences recited in (a) and (b); (d) functionally active fragments and variants of the sequences recited in (a), (b) and (c); and (e) RNA sequences corresponding to the sequences recited in (a), (b), (c) and (d).

5. A nucleic acid or nucleic acid fragment encoding a PEPC or PEPC-like polypeptide and including a nucleotide sequence selected from the group consisting of (a) sequences shown in Figures 42, 44, 46, 47, 49, 51, 53, 86, 88, 89, 91, 92, 94, 95, 97 and 110 hereto (SEQ ID NOS 187, 189, 191 to 197, 199, 201, 203, 310, 312 to 314, 315, 317 to 318, 319, 321 to 322, 323, 325 and 347 respectively); (b) complements of the sequences recited in (a); (c) sequences antisense to the sequences recited in (a) and (b); (d) functionally active fragments and variants of the sequences recited in (a), (b) and (c); and (e) RNA sequences corresponding to the sequences recited in (a), (b), (c) and (d).
6. A construct including one or more nucleic acids or nucleic acid fragments according to any one of claims 1 to 5.
7. A construct according to claim 6 including nucleic acids or nucleic acid fragments encoding both (a) a CS polypeptide or a CS-like polypeptide and (b) a MDH polypeptide or a MDH-like polypeptide.
8. A construct according to claim 6 including nucleic acids or nucleic acid fragments encoding both (a) a CS polypeptide or a CS-like polypeptide and (b) a PEPC polypeptide or a PEPC-like polypeptide.
9. A construct according to claim 6 including nucleic acids or nucleic acid fragments encoding both (a) a MDH polypeptide or a MDH-like polypeptide and (b) a PEPC polypeptide or a PEPC-like polypeptide.
10. A construct according to claim 6 including nucleic acids or nucleic acid fragments encoding all three of (a) a CS polypeptide or a CS-like polypeptide; (b) a MDH polypeptide or a MDH-like polypeptide; and (c) a PEPC polypeptide or a PEPC-like polypeptide.
11. A construct according to any one of claims 6 to 10 wherein the one or more nucleic acids or nucleic acid fragments are operably linked to one or more regulatory elements, such that the one or more nucleic acids or nucleic acid fragments are each expressed.
12. A construct according to Claim 11, wherein the one or more regulatory elements include a promoter and a terminator, said promoter, nucleic acid or nucleic acid fragment and terminator being operably linked.

13. A plant cell, plant, plant seed or other plant part, including a construct according to any one of claims 6 to 12.

14. A plant, plant seed or other plant part derived from a plant cell or plant according to Claim 13.

5 15. A method of modifying one or more of organic acid synthesis; organic acid secretion; nutrient acquisition; aluminium and acid soil tolerance; or nitrogen fixation and nodule function; in a plant, said method including introducing into said plant an effective amount of a nucleic acid or nucleic acid fragment according to any one of claims 1 to 5, or a construct according to any one of
10 claims 6 to 12.

16 A method according to claim 15 wherein said method includes introducing into said plant effective amounts of nucleic acids or nucleic acid fragments encoding both (a) a CS polypeptide or CS-like polypeptide and (b) a MDH polypeptide or MDH-like polypeptide.

15 17. A method according to claim 15 wherein said method includes introducing into said plant effective amounts of nucleic acids or nucleic acid fragments encoding both (a) a CS polypeptide or a CS-like polypeptide and (b) a PEPC polypeptide or a PEPC-like polypeptide

18. A method according to claim 15 wherein said method includes
20 introducing into said plant effective amounts of nucleic acids or nucleic acid fragments encoding both (a) a MDH polypeptide or a MDH-like polypeptide and (b) a PEPC polypeptide or a PEPC-like polypeptide.

19. A method according to claim 15 wherein said method includes introducing into said plant effective amounts of nucleic acids or nucleic acid
25 fragments encoding all three of (a) a CS polypeptide or a CS-like polypeptide; (b) a MDH polypeptide or a MDH-like polypeptide; and (c) a PEPC polypeptide or a PEPC-like polypeptide.

20. A method according to any one of claims 15 to 19 wherein the method is modifying nutrient acquisition and the nutrient is phosphorous.

21. Use of a nucleic acid or nucleic acid fragment according to any one of claims 1 to 5, and/or nucleotide sequence information thereof, and/or single nucleotide polymorphisms thereof as a molecular genetic marker.

22. A substantially purified or isolated nucleic acid or nucleic acid
5 fragment including a single nucleotide polymorphism (SNP) from a nucleic acid fragment according to any one of claims 1 to 5.

23. A nucleic acid or nucleic acid fragment including an SNP according to Claim 22, wherein said nucleic acid or nucleic acid fragment is from white clover (*Trifolium repens*) or perennial ryegrass (*Lolium perenne*).

10 24. A substantially purified or isolated polypeptide from a clover (*Trifolium*), medic (*Medicago*), ryegrass (*Lolium*) or fescue (*Festuca*) species, selected from the group consisting of CS and CS-like, MDH and MDH-like and PEPC and PEPC-like; and functionally active fragments and variants thereof.

25. A polypeptide according to Claim 24, wherein said polypeptide is
15 from white clover (*Trifolium repens*) or perennial ryegrass (*Lolium perenne*).

26. A polypeptide encoded by a nucleic acid or nucleic acid fragment according to any one of claims 1 to 5.

27. A polypeptide according to Claim 24 or 25, wherein said polypeptide is CS or CS-like and includes an amino acid sequence selected from the group
20 consisting of sequences shown in Figures 2, 5, 8, 10, 100, 103, 115, 119, 123 hereto (SEQ ID NOS 2, 12, 18, 20, 328, 337, 350, 352 and 354 respectively); and functionally active fragments and variants thereof.

28. A polypeptide according to Claim 24 or 25, wherein said polypeptide is MDH or MDH-like and includes an amino acid sequence selected from the
25 group consisting of sequences shown in Figures 12, 15, 18, 20, 22, 24, 27, 29, 32, 34, 36, 39, 41, 56, 59, 62, 65, 68, 71, 74, 77, 80, 83 and 85 hereto (SEQ ID NOS 22, 31, 35, 37, 39, 41, 45, 47, 112, 114, 116, 184, 186, 206, 219, 253, 272, 277, 289, 294, 297, 303, 307 and 309, respectively) and functionally active fragments and variants thereof.

30 29. A polypeptide according to Claim 24 or 25, wherein said polypeptide is PEPC or PEPC-like and includes an amino acid sequence selected from the

group consisting of sequences shown in Figures 43, 45, 48, 50, 52, 54, 87, 90, 93, 96, 98 and 111 hereto (SEQ ID NOS 188, 190, 198, 200, 202, 204, 311, 316, 320, 324, 326, and 348, respectively); and functionally active fragments and variants thereof.

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LpCSa : GNNTTATATTGACGGGGATGAGGGAATTCTTCGCTACAGAGGCTATCCAATTGAGGAGGT : 60
 * 20 * 40 * 60

LpCSa : GGCTGAAAGCAGCTCGTTTGTGAGGTCGCCTACCTCTTAATGTATGGGAATTTGCCCAC : 120
 * 80 * 100 * 120

LpCSa : CCAGAGTCAACTGGCAGGCTGGGAGTTTGCAATTTTCGCAGCACTCTGCTGTTCTCAAGG : 180
 * 140 * 160 * 180

LpCSa : ACTCTTGGATATAATAACAATCAATGCCTCATGATGCCCCACCCATGGGTGTCCTTGCCAG : 240
 * 200 * 220 * 240

LpCSa : TGCAATGAGCACACTTTCAGTCTTCCATCCAGATGCAAACCCTGCTCTTAGAGGTCAAGA : 300
 * 260 * 280 * 300

LpCSa : TCTATACAAGTCGAAGCAGGTTAGGGATAAGCAAATTGTACGAGTCTTGGAAGGCACC : 360
 * 320 * 340 * 360

LpCSa : AGTAATAGCAGCTGCAGCCTATCTGAGATTAGCAGGAAGGCCCTTTGTCCTTCCTTCAA : 420
 * 380 * 400 * 420

LpCSa : TAATCTCTCTTATTCAGAAAATTTCTTGTATATGCTGGACTCTATGGGTGACAAAGATTA : 480
 * 440 * 460 * 480

LpCSa : TAAGCCAAATCCCAGACTTGCCCGGGTTCTGGATGTCCTTTTATTCTTCATGCTGAACA : 540
 * 500 * 520 * 540

LpCSa : CGAAATGAACTGCTCAACAGCTGCTGTTAGGCACCTTGCTTCAAGTGGTGTGATGTCTT : 600
 * 560 * 580 * 600

LpCSa : CACTGCTCTTTCTGGTGCTGTTGGAGCTCTATATGGTCCACTGCATGGTGGCGCAAATGA : 660
 * 620 * 640 * 660

LpCSa : GGCGGTACTTAAATGTTAAATGAGATTGGAAGTGTAGAGAATATTCCGGAATTCATTGA : 720
 * 680 * 700 * 720

FIGURE 1

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LpCSa : GGGAGTGAAGAACAGGAAGCGGAAAATGTCTGGTTTTGGGCACCGTGTGTATAAGAATTA : 780
 LpCSa : TGATCCTCGTGCTAAAGTCATCCGGAAGTTAGCGGAGGAGGTTTTACGATTGTGGGACG : 840
 LpCSa : GGATCCTCTTATCGAGGTAGCTGTTGCTTTGGAGAAGGCAGCACTGTCAGACGAGTATTT : 900
 LpCSa : TATCAAGAGGAAGCTGTATCCAAATGTGGATTTTTATTCTGGCCTAATATATAGGGCAAT : 960
 LpCSa : GGGATTCCCTACAGAGTTTTTCCCTGTTCTGTTTGCAGTTCCTCGCATGGCTGGTTGGTT : 1020
 LpCSa : AGCACATTGGAAGGAGTCACTTGATGACCCGACAATAAAATTATGAGGCCCAACAGGT : 1080
 LpCSa : ATACACCGGTACTTGGCTAAGGCATTACACCCAGTGAGAGAACGGGTGCCATCAAGCGA : 1140
 LpCSa : CAGTGAGCAGCTTGGGCAGATCGCTACATCAAACGCGACGAGGCGTCGGCGTGCTGGCTC : 1200
 LpCSa : TGCCCTGTAGAACAGTCTGCATGATACAGCATAACAGTCCACACAATAAACCAAGCTGCCA : 1260
 LpCSa : AGGGCCACGGCTGCTTAAATCTGGGAGCTGCTATACTTGTGTTATCACGTATATATAGGC : 1320
 LpCSa : AATAAACTAATAATGCCGCCAGGACACTTCACTGGTGGTCATGTGAAGTTGGTAGTAGAA : 1380
 LpCSa : TGCACTTGTAACGTGTTGTTAATTTGTTATCCTGCAATGTACGCTCTATAAACTGTTTCAG : 1440
 LpCSa : TATCTTGAAAGTCTTAATCATGTGGACCAATGAAGACATAGATCAAGTTCTTTGCATGGG : 1500
 LpCSa : CGGCGGCTGTTTCTTTGGGAAAAAACTTTTATGGGAGTCTTTTTTTTACC : 1550

FIGURE 1 (cont.)

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LpCSa : YIDGDEGILRYRGYPIDEEVAESSSFVEVAYLLMYGNLPTQSQLAGWEFAISQHSAPVQGL : 60

LpCSa : LDIIQSMPHDAHPMGVLASAMSTLSVFHPDANPALRGQDLYKSKQVRDKQIVRVLGKAPV : 120

LpCSa : IAAAAYLRLAGRPFVLPNNLSYSENFYMLDSMGDKDYKPNPRLARVLDVLFILHAEHE : 180

LpCSa : MNCSTA AVRHLASSGVDVFTALSGAVGALYGPLHGGANEAVLKMLNEIGSVENIPEFIEG : 240

LpCSa : VKNRKRKMSGFGHRVYKNYDPRAKVIRKLAEVFTIVGRDPLIEVAVALEKAALSDEYFI : 300

LpCSa : KRKLYPNVDFYSGLIYRAMGFPTEFFPVLFVPRMAGWLAHWKESLDDPDNKIMRPQQVY : 360

LpCSa : TGTWLRHYTPVRERVPSSDSEQLGQIATSNATRRRRRAGSAL : 401

FIGURE 2

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		*	20	*	40	*	60		
LpCSa1 :	GNNTTATATTGACGGGGATGAGGGAATTCTTCGCTACAGAGGCTATCCAATTGAGGAGGT	:	60						
LpCSa2 :	-----	:	-						
LpCSa3 :	-----	:	-						
LpCSa4 :	-----	:	-						
LpCSa5 :	-----	:	-						
LpCSa6 :	-----	:	-						
LpCSa7 :	-----	:	-						
LpCSa8 :	-----	:	-						
		*	80	*	100	*	120		
LpCSa1 :	GGCTGAAAGCAGCTCGTTTGTGAGGTCGCCTACCTCTTAATGTATGGGAATTGCCCCAC	:	120						
LpCSa2 :	-----	:	-						
LpCSa3 :	-----	:	-						
LpCSa4 :	-----	:	-						
LpCSa5 :	-----	:	-						
LpCSa6 :	-----	:	-						
LpCSa7 :	-----	:	-						
LpCSa8 :	-----	:	-						
		*	140	*	160	*	180		
LpCSa1 :	CCAGAGTCAACTGGCAGGCTGGGAGTTTGCAATTTGCGAGCACTCTGCTGTTCCCTCAAGG	:	180						
LpCSa2 :	-----GCAGGCTGGGAGTTTGCAATTTGCA-----CACTCTGCTGTTCCCTCANGN	:	46						
LpCSa3 :	-----	:	-						
LpCSa4 :	-----	:	-						
LpCSa5 :	-----	:	-						
LpCSa6 :	-----	:	-						
LpCSa7 :	-----	:	-						
LpCSa8 :	-----	:	-						
		*	200	*	220	*	240		
LpCSa1 :	ACTCTTGATATAATAACAATCAATGCCTCATGATGCCCCACCCCATGGGTGTCCTTGCCAG	:	240						
LpCSa2 :	ACTCTTGATATAATAACAATCAATGCCTCATGATGCCCCACCCCATGGGTGTCCTTGCCAG	:	106						
LpCSa3 :	-----	:	-						
LpCSa4 :	-----	:	-						
LpCSa5 :	-----	:	-						
LpCSa6 :	-----	:	-						
LpCSa7 :	-----	:	-						
LpCSa8 :	-----	:	-						
		*	260	*	280	*	300		
LpCSa1 :	TGCAATGAGCACACTTTTCAGTCTTCCATCCAGATGCAAACCCTGCTCTTAGAGGTCAAGA	:	300						
LpCSa2 :	TGCAATGAGCACACTTTTCAGTCTTCCATCCAGATGCAAACCCTGCTCTTAGAGGTCAAGA	:	166						
LpCSa3 :	-----	:	-						
LpCSa4 :	-----	:	-						
LpCSa5 :	-----	:	-						
LpCSa6 :	-----	:	-						
LpCSa7 :	-----	:	-						
LpCSa8 :	-----	:	-						

FIGURE 3

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	*	320	*	340	*	360	
LpCSa1 :	TCTATACAAGTCGAAGCAGGTTAGGGATAAGCAAATTGTACGAGTTCTTGGGAAGGCACC						: 360
LpCSa2 :	TCTATACAAGTCGAAGCAGGTTAGGGATAAGCAAATTGTACGAGTTCTTGGGAAGGCACC						: 226
LpCSa3 :	-----						: -
LpCSa4 :	-----						: -
LpCSa5 :	-----						: -
LpCSa6 :	-----						: -
LpCSa7 :	-----						: -
LpCSa8 :	-----						: -

	*	380	*	400	*	420	
LpCSa1 :	AGTAATAGCAGCTGCAGCCTATCTGAGATTAGCAGGAAGGCCCTTTTGTCTTCCTTCAAA						: 420
LpCSa2 :	AGTAATAGCAGCTGCAGCCTATCTGAGATTAGCAGGAAGGCCCTTTTGTCTTCCTTCAAA						: 286
LpCSa3 :	-----						: -
LpCSa4 :	-----						: -
LpCSa5 :	-----						: -
LpCSa6 :	-----						: -
LpCSa7 :	-----						: -
LpCSa8 :	-----						: -

	*	440	*	460	*	480	
LpCSa1 :	TAATCTCTCTTATTCAGAAAATTTCTTGATATGCTGGACTCTATGGGTGACAAAGATTA						: 480
LpCSa2 :	TAATCTCTCTTATTCAGAAAATTTCTTGATATGCTGGACTCTATGGGTGACAAAGATTA						: 346
LpCSa3 :	-----						: -
LpCSa4 :	-----						: -
LpCSa5 :	-----						: -
LpCSa6 :	-----						: -
LpCSa7 :	-----						: -
LpCSa8 :	-----						: -

	*	500	*	520	*	540	
LpCSa1 :	TAAGCCAAATCCCAGACTTGCCCGGGTTCTGGATGTCCTTTTATTCTTCATGCTGAACA						: 540
LpCSa2 :	TAAGCCAAATCCCAGACTTGCCCGGGTTCTGGATGTCCTTTTATTCTTCATGCTGAACA						: 406
LpCSa3 :	-----NTTNTGCTG-ACA						: 12
LpCSa4 :	-----						: -
LpCSa5 :	-----						: -
LpCSa6 :	-----						: -
LpCSa7 :	-----						: -
LpCSa8 :	-----						: -

	*	560	*	580	*	600	
LpCSa1 :	CGAAATGAACTGCTCAACAGCTGCTGTTAGGCACCTTGCTTCAAGTGGTGTGCGATGTCTT						: 600
LpCSa2 :	CGAAATGAACTGCTCAACAGCTGCTGTTAGGCACCTTGCTTCAAGTGGTGTGCGATGTCTT						: 466
LpCSa3 :	CGAAATGAACTGCTCAACAGCTGCTGTTAGGCACCTTGCTTCAAGTGGTGTGCGATGTCTT						: 72
LpCSa4 :	-----						: -
LpCSa5 :	-----						: -
LpCSa6 :	-----						: -
LpCSa7 :	-----						: -
LpCSa8 :	-----						: -

FIGURE 3 (cont.)

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		*	620	*	640	*	660	
LpCSa1	:	CACTGCTCTTTCTGGTGCTGTTGGAGCTCTATATGGTCCACTGCATGG	NGGCGCAAATGA	:	660			
LpCSa2	:	CACTGCTCTTTCTGGTGCTGTTGGAGCTCTATATGGTCCACTGCATGGTGGCGCAAATGA	:	526				
LpCSa3	:	CACTGCTCTTTCTGGTGCTGTTGGAGCTCTATATGGTCCACTGCATGGTGGCGCAAATGA	:	132				
LpCSa4	:	-----	:	-				
LpCSa5	:	-----	:	-				
LpCSa6	:	-----	:	-				
LpCSa7	:	-----	:	-				
LpCSa8	:	-----	:	-				
		*	680	*	700	*	720	
LpCSa1	:	NGCGGTACTT-AAATGTTAAATGAGATTGGAAGTGTAGAGAATATTCCGGAATTCATTGA	:	719				
LpCSa2	:	GGCGGTACTTAAATGTTAAATGAGATTGGAAGTGTAGAGAATATTCCGGAATTCATTGA	:	586				
LpCSa3	:	GGCGGTACTTAAATGTTAAATGAGATTGGAAGTGTAGAGAATATTCCGGAATTCATTGA	:	192				
LpCSa4	:	-----	:	-				
LpCSa5	:	-----	:	-				
LpCSa6	:	-----	:	-				
LpCSa7	:	-----	:	-				
LpCSa8	:	-----	:	-				
		*	740	*	760	*	780	
LpCSa1	:	GGGAGTGAAGAACAGGAAGCGGAAAATGTCTGGN	TTTGGGCACN	-----	:	763		
LpCSa2	:	GGGAGTGAAGAACAGGAAGCGGAAAATGTCTGGT	TTTGGGCACCGTGTGTATAAGAATTA	:	646			
LpCSa3	:	GGGAGTGAAGAACAGGAAGCGGAAAATGTCTGGC	TTTGGGCACCGTGTGTATAAGAATTA	:	252			
LpCSa4	:	-----	GA	:	2			
LpCSa5	:	-----	:	-				
LpCSa6	:	-----	:	-				
LpCSa7	:	-----	:	-				
LpCSa8	:	-----	:	-				
		*	800	*	820	*	840	
LpCSa1	:	-----	:	-				
LpCSa2	:	TGATCCTCGTGCTAAAGTCATCCGGAAGTTAGCGGN	-----	:	682			
LpCSa3	:	TGATCCTCGTGCTAAAGTCATCCGGAAGTTAGCGGAGGAGGTTTTCACGATTGTGGGACG	:	312				
LpCSa4	:	TTATCCTCGCGCTAAAGTCAT-CCGG	GAGTTAGCGGAGGAGGTTTTCACGATTGTGGGACG	:	61			
LpCSa5	:	-----	GGAAGTTAGCGGAGGAGGTTTTCACGATTGTGGGACG	:	37			
LpCSa6	:	-----	:	-				
LpCSa7	:	-----	:	-				
LpCSa8	:	-----	:	-				
		*	860	*	880	*	900	
LpCSa1	:	-----	:	-				
LpCSa2	:	-----	:	-				
LpCSa3	:	GGATCCTCTTTATCGAGGTAGCTGTTGCTTTGGAGAAGGC	TAGCACTGTCAGACGAGTATTT	:	372			
LpCSa4	:	GGATCCTCTTTATCGAGGTAGCTGTTGCTTTGGAGAAGGCAGCACTGTCAGACGAGTATTT	:	121				
LpCSa5	:	GGNTCCTCTTTATCGAGGTAGCTGTTGCTTTGGAGAAGGCAGCACTGTCAGACGAGTATTT	:	97				
LpCSa6	:	-----	TNN	CAGACGAGTATTT	:	16		
LpCSa7	:	-----	GTC	CAGACGAGTATTT	:	15		
LpCSa8	:	-----	:	-				

FIGURE 3 (cont.)

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	*	920	*	940	*	960	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	TATCAAGAGGAAGCTGTATCCAAATGTGGATTTTATTCTGGCCTAATATATAGGGCAAT						: 432
LpCSa4 :	TATCAAGAGGAAGCTGTATCCAAATGTGGATTTTATTCTGGCCTAATATATAGGGCAAT						: 181
LpCSa5 :	TATCGAGAGGAAGCTGTATCCAAATGTGGATTTTATTCTGGCCTAATATATAGGGCAAT						: 157
LpCSa6 :	TATCAAGAGGAAGCTGTATCCAAATGTGGATTTTATTCTGGCCTAATATATAGGGCAAT						: 76
LpCSa7 :	TATCAAGAGGAAGCTGTATCCAAATGTGGATTTTATTCTGGCCTAATATATAGGGCAAT						: 75
LpCSa8 :	-----		-----		-----		-
	*	980	*	1000	*	1020	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	GGGATTCCCTACAGAGTTTTCCTGTTCTGTTTGCAGTTCCTCGCATGGCTGGTTGGTT						: 492
LpCSa4 :	GGGATTCCCTACAGAGTTTTCCTGTTCTGTTTGCAGTTCCTCGCATGGCTGGTTGGTT						: 241
LpCSa5 :	GGGATTCCCTACAGAGTTTTCCTGTTCTGTTTGCAGTTCCTCGCATGGCTGGTTGGTT						: 217
LpCSa6 :	GGGATTCCCTACAGAGTTTTCCTGTTCTGTTTGCAGTTCCTCGCATGGCTGGTTGGTT						: 136
LpCSa7 :	GGGATTCCCTACAGAGTTTTCCTGTTCTGTTTGCAGTTCCTCGCATGGCTGGTTGGTT						: 135
LpCSa8 :	-----		-----		-----		-
	*	1040	*	1060	*	1080	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	AGCACATTGGAAGGAGTCACCTTGATGACCCCGACAATAAAATTATGAGGCCCAACAGGT						: 552
LpCSa4 :	AGCACATTGGAAGGAGTCACCTTGATGACCCCGACAATAAAATTATGAGGCCCAACAGGT						: 301
LpCSa5 :	AGCACATTGGAAGGAGTCACCTTGATGACCCCGACAATAAAATTATGAGGCCCAACAGGT						: 277
LpCSa6 :	AGCACATTGGAAGGAGTCACCTTGATGACCCCGACAATAAAATTATGAGGCCCAACAGGT						: 196
LpCSa7 :	AGCACATTGGAAGGAGTCACCTTGATGACCCCGACAATAAAATTATGAGGCCCAACAGGT						: 195
LpCSa8 :	-----		-----		-----		-
	*	1100	*	1120	*	1140	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	ATACACCGGTACTTGGCTAAGGCATTACACCCAGTGAGAGAACGGGTGCCATCAAGCGA						: 612
LpCSa4 :	ATACACCGGTACTTGGCTAAGGCATTACACCCAGTGAGAGAACGGGTGCCATCAAGCGA						: 361
LpCSa5 :	ATACACCGGTACTTGGCTAAGGCATTACACCCAGTGAGAGAACGGGTGCCATCAAGCGA						: 337
LpCSa6 :	ATACACCGGTACTTGGCTAAGGCATTACACCCAGTGAGAGAACGGGTGCCATCAAGCGA						: 256
LpCSa7 :	ATACACCGGTACTTGGCTAAGGCATTACACCCAGTGAGAGAACGGGTGCCATCAAGCGA						: 255
LpCSa8 :	-----		-----		-----		-
		1160	*	1180	*	1200	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	CAGTGAGCAGCTTGGGCAGATCGCTACATCAAACGCGACGAGGCGTCGGCGTGCTGGCTC						: 672
LpCSa4 :	CAGTGAGCAGCTTGGGCAGATCGCTACATCAAACGCGACGAGGCGTCGGCGTGCTGGCTC						: 421
LpCSa5 :	CAGTGAGCAGCTTGGGCAGATCGCTACATCAAACGCGACGAGGCGTCGGCGTGCTGGCTC						: 397
LpCSa6 :	CAGTGAGCAGCTTGGGCAGATCGCTACATCAAACGCGACGAGGCGTCGGCGTGCTGGCTC						: 316
LpCSa7 :	CAGTGAGCAGCTTGGGCAGATCGCTACATCAAACGCGACGAGGCGTCGGCGTGCTGGCTC						: 315
LpCSa8 :	-----GGCAGATCGCT-CATCAAACGCGTCGAGGCGTCGGCGTGCTGGCTC						: 45

FIGURE 3 (cont.)

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	*	1220	*	1240	*	1260	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	TGCCCTGTAGAACAGTCTGCATGATACAGCATAACAGTCCACACAATAAACCAAGCTGCCA						: 732
LpCSa4 :	TGCCCTGTAGAACAGTCTGCATGATACAGCATAACAGTCCACACAATAAACCAAGCTGCCA						: 481
LpCSa5 :	TGCCCTGTAGAACAGTCTGCATGATACAGCATAACAGTCCACACAATAAACCAAGCTGCCA						: 457
LpCSa6 :	TGCCCTGTAGAACAGTCTGCATGATACAGCATAACAGTCCACACAATAAACCAAGCTGCCA						: 376
LpCSa7 :	TGCCCTGTAGAACAGTCTGCATGATACAGCATAACAGTCCACACAATAAACCAAGCTGCCA						: 375
LpCSa8 :	TGCCCTGTAGAACAGTCTGCATGATACAGCATAACAGTCCACACAATAAACCAAGCTGCCA						: 105
	*	1280	*	1300	*	1320	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	AGGGCCACGGCTGCTTAAATN-----						: 753
LpCSa4 :	AGGGCCACGGCTGCTTAAATCTGGGAGCTGCTATACTTGTGTTATCACGTATATATAGGC						: 541
LpCSa5 :	AGGGCCACAGCTGCTTAAATCTGGGAGCTGCTATACTTGTGTTATCACGTATATATAGGC						: 517
LpCSa6 :	AGGGCCACGGCTGCTTAAATCTGGGAGCTGCTATACTTGTGTTATCACGTATATATAGGC						: 436
LpCSa7 :	AGGGCCACGGCTGCTTAAATCTGGGAGCTGCTATACTTGTGTTATCACGTATATATAGGC						: 435
LpCSa8 :	AGGGCCACGGCTGCTTAAATCTGGGAGCTGCTATACTTGTGTTATCACGTATATATAGGC						: 165
	*	1340	*	1360	*	1380	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	-----		-----		-----		-
LpCSa4 :	AATAAACTAATAATGCCGCCAGGACACTTCACTGGTGGTCATGTGAAGTTGGTAGTAGAA						: 601
LpCSa5 :	AATAAACTAATAATGCCGCCAGGACACTTCACTGGTGGTCATGTGAAGTTGGTAGTAGAA						: 577
LpCSa6 :	AATAAACTAATAATGCCGCCAGGACACTTCACTGGTGGTCATGTGAAGTTGGTAGTAGAA						: 496
LpCSa7 :	AATAAACTAATAATGCCGCCAGGACACTTCACTGGTGGTCATGTGAAGTTGGTAGTAGAA						: 495
LpCSa8 :	AATAAACTAATAATGCCGCCAGGACACTTCACTGGTGGTCATGTGAAGTTGGTAGTAGAA						: 225
	*	1400	*	1420	*	1440	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	-----		-----		-----		-
LpCSa4 :	TGCACTTGTAACGTGTTGTTAATTTGTTATCCTGCAATGTACGCTCTATAAACTGTTTCAG						: 661
LpCSa5 :	TGCACTTGTAACGTGTTGTTAATTTGTTATCCTGCAATGTACGCTCTATAAACTGTTTCAG						: 637
LpCSa6 :	TGCACTTGTAACGTGTTGTTAATTTGTTATCCTGCAATGTACGCTCTATAAACTGTTTCAG						: 556
LpCSa7 :	TGCACTTGTAACGTGTTGTTAATTTGTTATCCTGCAATGTACGCTCTATAAACTGTTTCAG						: 555
LpCSa8 :	TGCACTTGTAACGTGTTGTTAATTTGTTATCCTGCAATGTACGCTCTATAAACTGTTTCAG						: 285
	*	1460	*	1480	*	1500	
LpCSa1 :	-----		-----		-----		-
LpCSa2 :	-----		-----		-----		-
LpCSa3 :	-----		-----		-----		-
LpCSa4 :	TGCTCTGAAAGTCTTAATCATGTGGACCAA-GAAGACATAGATCAAGTTCTTTGCATGGG						: 720
LpCSa5 :	TATCTTGAAAGTCTTANTCNNNNNAAAA-----						: 666
LpCSa6 :	TATCTTGAAAGTCTTAATCATGTGGACCAA-GAAGACATAGATCAAGTTCTTTGCATGGG						: 615
LpCSa7 :	TATCTTGAAAGTCTTAATCATGTGGACCAATCAAAAAA-----						: 597
LpCSa8 :	TATCTTGAAAGTCTTAAAAA-----						: 310

FIGURE 3 (cont.)

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	*	1520	*	1540	*	
LpCSa1 :	-----		-----		-----	-
LpCSa2 :	-----		-----		-----	-
LpCSa3 :	-----		-----		-----	-
LpCSa4 :	CGGCGGCTGTTTCTTTGGN	AAAAAA	-----		-----	745
LpCSa5 :	-----		-----		-----	-
LpCSa6 :	CGGCGGCTGTTTCTTTG	TCTTTCTCT	TTTTTATGGGAGTCTTTT	TTTACC	-----	665
LpCSa7 :	-----		-----		-----	-
LpCSa8 :	-----		-----		-----	-

FIGURE 3 (cont.)

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LpCSb : CTTCTCCCTGTNACTGCTCTCCAATGACACAGTTTACCCTGGAGTGATGGCACTCCAAG : 60
 * 20 * 40 * 60

LpCSb : TTGAGAGTGAATTTGCAAAGGCTTATGAGAAGGGAATTCATAAATCAAAGTCTGGGAGC : 120
 * 80 * 100 * 120

LpCSb : CTACATATGAAGATAGCTTAAATTTGATTGCTCGGCTTCCACAAGTGGCTTCATATGTTT : 180
 * 140 * 160 * 180

LpCSb : ACCGGAGAATTTTCAAGGACGGGAAAACCTATTGCAGCTGATAATACACTGGACTACGCAG : 240
 * 200 * 220 * 240

LpCSb : CTAATTTTTCACACATGCTTGGTTTTGATGACCCCAAATGCTGGAGTTGATGCGCCTAT : 300
 * 260 * 280 * 300

LpCSb : ACATAACAATTCACACTGATCACGAAGGAGGGAATGTTAGTGCTCATGCTGGGCATCTGG : 360
 * 320 * 340 * 360

LpCSb : TTGGAAGTGCTCTGTCAGATCCTTATCTTTCTTTTGCAGCGGCACTGAACGGTTTAGCTG : 420
 * 380 * 400 * 420

LpCSb : GACCACTGCACGGCTTGGCTAATCAGGAAGTGTGTGATGGAATCAAATCTGTGATGGAAG : 480
 * 440 * 460 * 480

LpCSb : AAACCGGGAGTAACATTACAACCTGATCAGCTTAAAGAATATGTTTGGAAGACACTGAAGA : 540
 * 500 * 520 * 540

LpCSb : GTGGAAAAGTTGTTCCCTGGCTATGGTCATGGAGTTCTACGTAATACAGATCCACGATACT : 600
 * 560 * 580 * 600

LpCSb : CGTGCCAAAGGGAGTTTGCACTGAAGTATTTACCCGAAGACCACTTTTCCAAGTGGTCT : 660
 * 620 * 640 * 660

LpCSb : CCAAGTTGTACGAAGTTGTGCCTCCTATCCTCACCAGTTAGGCAAGGTAAAAAACCCAT : 720
 * 680 * 700 * 720

LpCSb : GGCCTAATGTTGATGCTCACAGTGGAGTTTGTCTCAACCACTTCGGATTAGTTGAAGCAC : 780
 * 740 * 760 * 780

LpCSb : GGTACTACACTGTCTTGTTCGGCGTCTCAAGGAGCATGGGAATTGGATCTCAGCTCATTT : 840
 * 800 * 820 * 840

FIGURE 4

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LpCSb : GGGACCGTGCCCTCGGCCTGCCACTTGAAAGACCGAAGAGTGTCAACCATGGAGTGGCTGG : 900

LpCSb : AAAACCACTGCAAGAAGGCTGCGGCCTGAAGCTACACCAATGCTTCGTTTTACAAATCAG : 960

LpCSb : GCCGTCTTTGATGTTAATAATGACTGAGCATAAGTTAGGCATGGTTAGCCTTGTTTTACC : 1020

LpCSb : ATCTTCGTTTTCTGGCCAATAACTGGAGCAAGAGGCTCACAGACGGTAGAATTTTGTA : 1080

LpCSb : CCACCGNTACTTGAACACCGAATCANTTAAATGTCATTTGGCATAAAGAGATTAGGACAT : 1140

LpCSb : GACACATAAGTTTTATGTGTCGCTCGG : 1167

FIGURE 4 (cont.)

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LpCSb : SPCXCSPMTQFTTGVMALQVESEFAKAYEKGHIHKSKEFWPTYEDSLNLIARLPQVASVY : 60
 * 20 * 40 * 60

LpCSb : RRIFKDGKTIAADNTLDYAANFSHMLGFDDPKMLELMRLYITIHTDHEGGNVSAHAGHLV : 120
 * 80 * 100 * 120

LpCSb : GSALSDPYLSFAAALNGLAGPLHGLANQEV LXWIKSVMEETGSNITTDQLKEYVWKTLS : 180
 * 140 * 160 * 180

LpCSb : GKVVPGYGHGVL RNTDPRYSCQREFALKYLPEDPLFQLVSKLYEVVPPILTEL GKVKNPW : 240
 * 200 * 220 * 240

LpCSb : PNVDHSGVLLNHFG LVEARYYT VLFVSRSMGIGSQLIWDRALGLPLERP KSVTMEWLE : 300
 * 260 * 280 * 300

LpCSb : NHCKKAAA : 308

FIGURE 5

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	* 20 * 40 * 60	
LpCSb1 :	CTTCTCCCTGTNACTGCTCTCCAATGACACAGTTTACCACTGGAGTGATGGCACTCCAAG	: 60
LpCSb2 :	-----	: -
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -
	* 80 * 100 * 120	
LpCSb1 :	TTGAGAGTGAATTTGCAAAGGCTTATGAGAAGGGAATTCATAAATCAAAGTTCTGGGAGC	: 120
LpCSb2 :	-----	: -
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -
	* 140 * 160 * 180	
LpCSb1 :	CTACATATGAAGATAGCTTAAATTTGATTGCTCGGCTTCCACAAGTGGCTTCATATGTTT	: 180
LpCSb2 :	-----	: -
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -
	* 200 * 220 * 240	
LpCSb1 :	ACCGGAGAATTTTCAAGGACGGGAAAACATTGTCAGCTGATAATACACTGGACTACGCAG	: 240
LpCSb2 :	-----	: -
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -
	* 260 * 280 * 300	
LpCSb1 :	CTAATTTTTTCACACATGCTTGGTTTTGATGACCCCAAATGCTGGAGTTGATGCGCCTAT	: 300
LpCSb2 :	-----	: -
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -
	* 320 * 340 * 360	
LpCSb1 :	ACATAACAATTCACACTGATCACGAAGGAGGGAATGTTAGTGCTCATGCTGGGCATCTGG	: 360
LpCSb2 :	-----	: -
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -
	* 380 * 400 * 420	
LpCSb1 :	TTGGAAGTGCTCTGTCAGATCCTTATCTTTCTTTTGCAGCGGCACTGAACGSTTTAGCTG	: 420
LpCSb2 :	-----	: -
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -
	* 440 * 460 * 480	
LpCSb1 :	GACCACTGCACGGCTTGGCTAATCAGGAAGTGTGTATGGATCAAATCTGTGATGGAAG	: 480
LpCSb2 :	----- TNATGGAT-NAATCTGTGATGGAAG	: 24
LpCSb3 :	-----	: -
LpCSb4 :	-----	: -

FIGURE 6

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		*	500	*	520	*	540	
LpCSb1 :	AAACCGGGAGTAACATTACAAC	TGATCAGCTTAAAGAATATGTTT	GGAAGACACTGAAGA	:	540			
LpCSb2 :	-AAACCGGGAGTAACATTACAAC	TGATCAGCTTAAAGAATATGTTT	GGAAGACACTGAAGA	:	83			
LpCSb3 :	-----	-----	CTGAAGA	:	7			
LpCSb4 :	-----	-----	-----	:	-			
		*	560	*	580	*	600	
LpCSb1 :	GTGGAAAGGTTGTTCTG	GCTATGGTCATGGAGTTCTACGTAATACAGATCCACGATACT	:	600				
LpCSb2 :	GTGGAAAGGTTGTTCTG	GCTATGGTCATGGAGTTCTACGTAATACAGATCCACGATACT	:	143				
LpCSb3 :	GTGGAAAGGTTGTTCTG	GCTATGGTCATGGAGTTCTACGTAATACAGATCCACGATACT	:	67				
LpCSb4 :	-----	-----	-----	:	-			
		*	620	*	640	*	660	
LpCSb1 :	CGTGCCAAAGGGAGTTT	GCAC	TGAAGTATTTACCTGAAGACCCACTTTTCCA	ACTGGTCT	:	660		
LpCSb2 :	CGTGCCAAAGGGAGTTT	GCAC	TGAAGTATTTACCCGAAGACCCACTTTTCCA	ACTGGTCT	:	203		
LpCSb3 :	CGTGCCAAAGGGAGTNG	NACTGAAGTATTTACCCGAAGACCCACTTTTCCA	ACTGGTCT	:	127			
LpCSb4 :	-----	-----	-----	:	-			
		*	680	*	700	*	720	
LpCSb1 :	CCAAGTTGTATGAAGTT	TGTGCCTCCTATCCTCAC	TGAGTTAGGCAAGGTAAAAA	ACCCAT	:	720		
LpCSb2 :	CCAAGTTGTACGAAGTT	TGTGCCTCCTATCCTCAC	CGAGTTAGGCAAGGTAAAAA	ACCCAT	:	263		
LpCSb3 :	CCAAGTTGTACGAAGTT	TGTGCCTCCTATCCTCAC	CGAGTTAGGCAAGGTAAAAA	ACCCAT	:	187		
LpCSb4 :	-----	-----	-----	:	-			
		*	740	*	760	*	780	
LpCSb1 :	GGCCTAATGTTGATGCT	CACAGNGGAGTTT	TGCTCAACCACTTCGGATTAGTTGAA	-CAC	:	779		
LpCSb2 :	GGCCTAATGTTGATGCT	CACAGTGGAGTTT	TGCTCAACCACTTCGGATTAGTTGAAGCAC	:	323			
LpCSb3 :	GGCCTAATGTTGATGCT	CACAGTGGAGTTT	TGCTCAACCACTTCGGATTAGTTGAAGCAC	:	247			
LpCSb4 :	-----	-----	-----	:	-			
		*	800	*	820	*	840	
LpCSb1 :	GGNACTACACTGNC	CTTGN	TCGGN	-----	:	802		
LpCSb2 :	GGTACTACACTGTCTT	GTTCGGCGTCTCAAGGAGCATGGGAATTGGATCTCAGC	CCATTT	:	383			
LpCSb3 :	GGTACTACACTGTCTT	GTTCGGCGTCTCAAGGAGCATGGGAATTGGATCTCAGC	TCATTT	:	307			
LpCSb4 :	-----	-----	-----	CTTTTGGATCCAGCTCATT	:	22		
		*	860	*	880	*	900	
LpCSb1 :	-----	-----	-----	-----	:	-		
LpCSb2 :	GGGACCGTGCCCTCG	GCCTGCCACTTGAAAGACCGAAGAGTGT	CACCATGGAGTGGCTGG	:	443			
LpCSb3 :	GGGACCGTGCCCTCG	GCCTGCCACTTGAAAGACCGAAGAGTGT	CACCATGGAGTGGCTGG	:	367			
LpCSb4 :	GGGTCCGTGCCCTCG	GCCTGCCACTTGAAAGACCGAAGAGTGT	CACCATGGAGTGGCTGG	:	82			
		*	920	*	940	*	960	
LpCSb1 :	-----	-----	-----	-----	:	-		
LpCSb2 :	AAAACCACTGCAAGA	AAGGCTGCGGCCTGAAGCTACACCAATGCTTCGTTTTACAAATCAG	:	503				
LpCSb3 :	AAAACCACTGCAAGA	AAGGCTGCGGCCTGAAGCTACACCAATGCTTNGTTTTACAAATCAN	:	427				
LpCSb4 :	AAAACCACTGCAAGA	AAGGCTGCGGCCTGAAGCTACACCAATGCTTCGTTTTACAAATCAG	:	142				

FIGURE 6 (cont.)

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	*	980	*	1000	*	1020	
LpCSb1 :	-----						:
LpCSb2 :	GCCGTCCTTGATGTTAATAATGACTGAGCATAAGTTAGGCATGGTTAGCCTTGTTTTACC						: 563
LpCSb3 :	GCCGTCCTTGATGTTAATAATGACTGAGCATAAGTTAGGCATGGCTAGCCTTGTTTTACC						: 487
LpCSb4 :	GCCGTCCTTGATGTTAATAATGACTGAGCATAAGTTAGGCATGGTTAGCCTTGTTTTACC						: 202

	*	1040	*	1060	*	1080	
LpCSb1 :	-----						:
LpCSb2 :	ATCTTCGTTTTCTGGCCAATAACTGGAGCAAGAGGCTTACAGACGGTAGAATTTTGTA						: 623
LpCSb3 :	ATNTTCGTTTTCTGGCCAATAACTGGAGCAAGAGGCTCACAGACGGTAGAATTTTGTA						: 547
LpCSb4 :	ATCTTCGTTTTCTGGCCAATAACTGGAGCAAGAGGCTCACAGACGGTAGAATTTTGTA						: 262

	*	1100	*	1120	*	1140	
LpCSb1 :	-----						:
LpCSb2 :	CCACCGNTACTTGAACACCGAATCANTTAAATGTCATTTGGCATAAAGAGATTAGGACAT						: 683
LpCSb3 :	CCACCGCTACTTGACACCGAATNANNTAAATGCTATTTGGCATAAAGAGATTAGGACAT						: 606
LpCSb4 :	CCACCGTTACTTGAACACCGAATCAGTTAAATGTCATTTGGCATAAAGAGATTAGGACAT						: 322

	*	1160	
LpCSb1 :	-----		:
LpCSb2 :	GACACATAAGTTTTATGTGTCGTCGG		: 710
LpCSb3 :	GACACATAAGTTTTATGTGTCGCTCGG		: 633
LpCSb4 :	GACACATAAGTTTTATGTGTCGCTCGA		: 349

FIGURE 6 (cont.)

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LpCSc : TCNCCGTGGCCANAATNCCCCANCATTCAAATACCGCCCGTCAGCCACCAATCCTCCTAC : 60
 LpCSc : CTTCTTATTTCCACCCCAACCGCCCAACATGTGTCTCCACCGAANAACACCTGCTAC : 120
 LpCSc : CAACGGCCATAGCAACGGCACCAACGGCGCCAATGGCTCCAAGGAAGGCTTCACAGGCGT : 180
 LpCSc : CACGACCAGACAGAACCCTCACCTACACACAAGAGCCCATATGCACCTGTTGGCGACTT : 240
 LpCSc : TTTGTCAAATGTGCGCCGCTTCAAGATTATCGAGAGCACATTAAGAGAGGGCGAGCAATT : 300
 LpCSc : CGCCAACGCCTACTTCGACCTTGAGGCTAAAATCAAGATCGCCAGAGCTCTCGACAATT : 360
 LpCSc : TGGTGTGACTACATTGAAGTTACCAGCCCTGCTGCCTCTGAGCAGTCAAGAAGGGACTG : 420
 LpCSc : CGAAGCCCTCTGCAAGCTCGGATTGAAAGCCAAGATCCTTACCCACGTACGATGCCACAT : 480
 LpCSc : GGACGATGCCAGAATCGCTGTCGAGACTGGTGTGACGGCCTCGATGTCGTCATTGGAAC : 540
 LpCSc : CTCTGCGTACCTCCGCGAGCACAGCCATGGCAAGGACATGACATACATCAAAAACACAGC : 600
 LpCSc : GCTGGAGGTGATTGAGTTTGTCAAGAGCAAGGGAN : 635

FIGURE 7

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LpCSc : XRGXNXPFKYRPSATNPPTFLFPPQPPNMCPTTEXTPTATNGHSNGTNGANGSKEGFTGV : 60

LpCSc : TTRQNPHPTHKSPYAPVGDFLSNVGRFKIIESTLREGEQFANAYFDLEAKIKIARALDNF : 120

LpCSc : GVDYIEVTSPAASEQSRRDCEALCKLGLKAKILTHVRCHMDDARIAVETGVDGLDVVIGT : 180

LpCSc : SAYLREHSHGKDMTYIKNTALEVIEFVKSKG : 211

FIGURE 8

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LpCSd : GTGNTATGGCNCANCCAGNANTCCTNCGTNCTGGCTNCCANANNAGNAANAAGCTATCGG : 60
 * 20 * 40 * 60

LpCSd : CAACGACCTCAGCGATCAGGCCATCAAGGACTACCTGTGGTCCACCCTCAAGGCTGGCCA : 120
 * 80 * 100 * 120

LpCSd : AGTCGTTCCCGGTTACGGACACGCCGTTCTCCGCAAGACCGACCCCGCTACGTCTCCCA : 180
 * 140 * 160 * 180

LpCSd : GCGCGAGTTCGCCCAGAAGCACCTTCCCGACGACCCAATGTTCAAGCTCGTCAGTCAGGT : 240
 * 200 * 220 * 240

LpCSd : CTACAAGATCGCCCCTGGTGTCTCACCGAGCACGGCAAGACCAAGAACCCCTACCCCAA : 300
 * 260 * 280 * 300

LpCSd : CGTCGACGCCCACTCCGGTGTCTCCTCCAGTACTACGGCCTCACTGAGCAGAACTACTA : 360
 * 320 * 340 * 360

LpCSd : CACCGTTCTCTTCGGTGTATCCCGTGCGCTCGGTGTCTTCCCCAGCTTATCATTGACCG : 420
 * 380 * 400 * 420

LpCSd : TGCCGTCGGTGCCCCCATTGAGAGGCCCAAGTCTTTCAGCACTGAGGCTTACGCCAAGTT : 480
 * 440 * 460 * 480

LpCSd : GGTTGGTGCTAAGTTGTAAGCGCGTTACTGCAACGTGCTCTACAGCCAGGAGAATGTGGA : 540
 * 500 * 520 * 540

LpCSd : GGAATTTGTTTAACATTGAGAGATACCTTGTCTGTGTAGAAATTGCAATGTAAGGATAGG : 600
 * 560 * 580 * 600

LpCSd : GAATGGGAGCGTTACGGCGCTACATCACTACATTTN : 636
 * 620 *

FIGURE 9

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LpCsd : XYGXXXXPXXWXPXXXXAIGNDLSDQAIKDYLWSTLKAGQVVPGYGHAVLRKTDPRYVSQ : 60

LpCsd : REFAQKHLPDDPMFKLVSQVYKIAPGVLTEHGKTKNPYPNVDAHSGVLLQYYGLTEQNY : 120

LpCsd : TVLFGVSRALGVLPQLIIDRAVGAPIERPKSFSTEAYAKLVGAKL : 165

FIGURE 10

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* 20 * 40 * 60
 LpMDHa : GGTGCTGCTGGTATCACCATTCTGCCCTGTTCTCACAGGCAACTCCTTCGACTAATGC : 60

* 80 * 100 * 120
 LpMDHa : ATTGTCTAGTGAAGACATCAAGGCTCTCACCAAGAGGACACAGGAGGGTGGGACAGAAGT : 120

* 140 * 160 * 180
 LpMDHa : TGTTGAGGCAAAGGCTGGAAAGGATCTGCAACCTTGTCATGGCGTATGCTGGCGCAGT : 180

* 200 * 220 * 240
 LpMDHa : TTTTGGTGATGCATGCTTGAAGGCTCTGAACGGAGTTCCTGACATTGTTGAATGCTCCTA : 240

* 260 * 280 * 300
 LpMDHa : CGTGCAATCAACTATCACAGAACTGCCATTCTTGCCTCCAAGGTGAGGCTCGGGAAGAA : 300

* 320 * 340 * 360
 LpMDHa : TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCGGCCTTTGAGAAGGAAGGTTTGA : 360

* 380 * 400 * 420
 LpMDHa : AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG : 420

* 440 * 460 * 480
 LpMDHa : TTAATTAATTTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTGTTTTTGACTTT : 480

* 500 * 520 * 540
 LpMDHa : TTGTTCAAGTGCTTTTTCTGCCCATCACGTGGGCATGGAAGATTGAGCTTCACAATAAAA : 540

* 560 * 580 * 600
 LpMDHa : ATCCGGCGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGAAC'TAGTTCGTGTCAAG : 600

* 620 * 640 * 660
 LpMDHa : TTTTGAAGTGGTACATTAAACGAACAATTGCTGATGCAC'TTTGAGAAAAAAATTGGGG : 660

* 680 *
 LpMDHa : GTGANTCCATTGGCCTCAAGCCAAAAAAAAAAAAAAAA : 696

FIGURE 11

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 * 20 * 40 * 60
LpMDHa : VGCWYHHSALFSQATPSTNALSSEDIKALTKRTQEGGTEVVEAKAGKGSATLSMAYAGAV : 60

 * 80 * 100 * 120
LpMDHa : FGDACLKGLNGVPDIVECSYVQSTITELPFFASKVRLGKNGVEEV LGLGELSAFEKEGLE : 120

 * 140
LpMDHa : SLKGELKSSIDKGIAFANAS : 140

FIGURE 12

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	*	320	*	340	*	360	
LpMDHa1 :		TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCTGGCCTTTGAGAAGGAAGGTTTGGGA					: 360
LpMDHa2 :		TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCTGGCCTTTGAGAAGGAAGGTTTGGGA					: 359
LpMDHa3 :		TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCTGGCCTTTGAGAAGGAAGGTTTGGGA					: 359
LpMDHa4 :		TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCTGGCCTTTGAGAAGGAAGGTTTGGGA					: 356
LpMDHa5 :		TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCTGGCCTTTGAGAAGGAAGGTTTGGGA					: 257
LpMDHa6 :		TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCTGGCCTTTGAGAAGGAAGGTTTGGGA					: 77
LpMDHa7 :		TGGAGTCGAGGAAGTGCTTGGTTTGGGTGAGCTGTCTGGCCTTTGAGAAGGAAGGTTTGGGA					: 62

	*	380	*	400	*	420	
LpMDHa1 :		AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG					: 420
LpMDHa2 :		AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG					: 419
LpMDHa3 :		AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG					: 419
LpMDHa4 :		AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG					: 416
LpMDHa5 :		AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG					: 317
LpMDHa6 :		AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG					: 137
LpMDHa7 :		AAGTCTCAAGGGTGAGCTCAAGTCTTCAATTGACAAGGGCATCGCGTTCGCCAATGCGAG					: 122

	*	440	*	460	*	480	
LpMDHa1 :		TTAATTAATTTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTG---TTG---TTT					: 475
LpMDHa2 :		TTAATTAATTTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTG---TTG---TTT					: 474
LpMDHa3 :		TTAATTAATTTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTG---TTG---TTT					: 474
LpMDHa4 :		TTAATTAATTTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTG---TTG---TTT					: 471
LpMDHa5 :		TTGATTAAATTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTGTTTGTGACTTT					: 377
LpMDHa6 :		TTGATTAAATTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTGTTTGTGACTTT					: 197
LpMDHa7 :		TTGATTAAATTTGCAGATTATAGCAAACCAGGTCTAGTTAAGGGGTCTGTTTGTGACTTT					: 182

	*	500	*	520	*	540	
LpMDHa1 :		TTGTTTCAGTGCTTTTTCTGCCCCATCACGTGGGCATGGAAGATTTGAGCTTCACAATAAAA					: 535
LpMDHa2 :		TTGTTTCAGTGCTTTTTCTGCCCCATCACGTGGGCATGGAAGATTTGAGCTTCACAATAAAA					: 534
LpMDHa3 :		TTGTTTCAGTGCTTTTTCTGCCCCATCACGTGGGCATGGAAGATTTGAGCTTCACAATAAAA					: 534
LpMDHa4 :		TTGTTTCAGTGCTTTTTCTGCCCCATCACGTGGGCATGGAAGATTTGAGCTTCACAATAAAA					: 531
LpMDHa5 :		TTGTTTCAGTGCTTTTTCTGCCCCATCACGTGGGCATGGAAGATTTGAGCTTCACAATAAAA					: 437
LpMDHa6 :		TTGTTTCAGTGCTTTTTCTGCCCCATCACGTGGGCATGGAAGATTTGAGCTTCACAATAAAA					: 257
LpMDHa7 :		TTGTTTCAGTGCTTTTTCTGCCCCATCACGTGGGCATGGAAGATTTGAGCTTCACAATAAAA					: 242

	*	560	*	580	*	600	
LpMDHa1 :		ATCCGGCGGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGGAAGTAGTTCGTGTCAAG					: 595
LpMDHa2 :		ATCCGGCGGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGGAAGTAGTTCGTGTCAAG					: 594
LpMDHa3 :		ATCCGGCGGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGGAAGTAGTTCGTGTCAAG					: 594
LpMDHa4 :		ATCCGGCGGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGGAAGTAGTTCGTGTCAAG					: 544
LpMDHa5 :		ATCCGGCGGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGGAAGTAGTTCGTGTCAAG					: 497
LpMDHa6 :		ATCCGGCGGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGGAAGTAGTTCGTGTCAAG					: 317
LpMDHa7 :		ATCCGGCGGGCGTAATGCCACAGAACATTACTTGTACAAGAGGGGAAGTAGTTCGTGTCAAG					: 302

FIGURE 13 (cont.)

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	*	20	*	40	*	60	
LpMDHa1 :	GTTTGGTTGCTGGTATCACCATTCTGCCCTGTTCTCACAGGCAACTCCTTCGACTAATGC						: 60
LpMDHa2 :	-GGTGGTTGCTGGTATCACCATTCTGCCCTGTTCTCACAGGCAACTCCTTCGACTAATGC						: 59
LpMDHa3 :	-GTTGGTTGCTGGTATCACCATTCTGCCCTGTTCTCACAGGCAACTCCTTCGACTAATGC						: 59
LpMDHa4 :	----GGTTGCTGGTATCACCATTCTGCCCTGTTCTCACAGGCAACTCCTTCGACTAATGC						: 56
LpMDHa5 :	-----						: -
LpMDHa6 :	-----						: -
LpMDHa7 :	-----						: -

	*	80	*	100	*	120	
LpMDHa1 :	ATTGTCTAGTGAAGACATCAAGGCTCTCACCAAGAGGACACAGGAGGGTGGGACAGAAGT						: 120
LpMDHa2 :	ATTGTCTAGTGAAGACATCAAGGCTCTCACCAAGAGGACACAGGAGGGTGGGACAGAAGT						: 119
LpMDHa3 :	ATTGTCTAGTGAAGACATCAAGGCTCTCACCAAGAGGACACAGGAGGGTGGGACAGAAGT						: 119
LpMDHa4 :	ATTGTCTAGTGAAGACATCAAGGCTCTCACCAAGAGGACACAGGAGGGTGGGACAGAAGT						: 116
LpMDHa5 :	-----GAGGGTGGGACAGAAGT						: 17
LpMDHa6 :	-----						: -
LpMDHa7 :	-----						: -

	*	140	*	160	*	180	
LpMDHa1 :	TGTTGAGGCAAAGGCTGGAAAGGGATCTGCAACCTTGTCATGGCGTATGCTGGCGCAGT						: 180
LpMDHa2 :	TGTTGAGGCAAAGGCTGGAAAGGGATCTGCAACCTTGTCATGGCGTATGCTGGCGCAGT						: 179
LpMDHa3 :	TGTTGAGGCAAAGGCTGGAAAGGGATCTGCAACCTTGTCATGGCGTATGCTGGCGCAGT						: 179
LpMDHa4 :	TGTTGAGGCAAAGGCTGGAAAGGGATCTGCAACCTTGTCATGGCGTATGCTGGCGCAGT						: 176
LpMDHa5 :	TGTTGAGGCAAAGGCTGGAAAGGGATCTGCAACCTTGTCATGGCGTATGCTGGCGCAGT						: 77
LpMDHa6 :	-----						: -
LpMDHa7 :	-----						: -

	*	200	*	220	*	240	
LpMDHa1 :	TTTTGGTGTATGCATGCTTGAAGGGTCTGAACGGAGTTCCTGACATTGTTGAATGCTCCTA						: 240
LpMDHa2 :	TTTTGGTGTATGCATGCTTGAAGGGTCTGAACGGAGTTCCTGACATTGTTGAATGCTCCTA						: 239
LpMDHa3 :	TTTTGGTGTATGCATGCTTGAAGGGTCTGAACGGAGTTCCTGACATTGTTGAATGCTCCTA						: 239
LpMDHa4 :	TTTTGGTGTATGCATGCTTGAAGGGTCTGAACGGAGTTCCTGACATTGTTGAATGCTCCTA						: 236
LpMDHa5 :	TTTTGGTGTATGCATGCTTGAAGGGTCTGAACGGAGTTCCTGACATTGTTGAATGCTCCTA						: 137
LpMDHa6 :	-----						: -
LpMDHa7 :	-----						: -

	*	260	*	280	*	300	
LpMDHa1 :	CGTGCAATCAACTATCACAGAAGTCCATTCTTTGCCTCCAAGGTGAGGCTCGGGAAGAA						: 300
LpMDHa2 :	CGTGCAATCAACTATCACAGAAGTCCATTCTTTGCCTCCAAGGTGAGGCTCGGGAAGAA						: 299
LpMDHa3 :	CGTGCAATCAACTATCACAGAAGTCCATTCTTTGCCTCCAAGGTGAGGCTCGGGAAGAA						: 299
LpMDHa4 :	CGTGCAATCAACTATCACAGAAGTCCATTCTTTGCCTCCAAGGTGAGGCTCGGGAAGAA						: 296
LpMDHa5 :	TGTGCAATCAACTATCACAGAAGTCCATTCTTTGCCTCCAAGGTGAGGCTCGGGAAGAA						: 197
LpMDHa6 :	-----CTNANGCTCGGNNAGAA						: 17
LpMDHa7 :	-----AA						: 2

FIGURE 13

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	*	620	*	640	*	660	
LpMDHa1 :	TTTTGAACTGGTACATTAAACGAACAATTGCTGATGCACCTTTGAGAAAAAAAAA						: 650
LpMDHa2 :	TTTTGAACTGGTACATTAAACGAACAATTGCTGATGCACCTTTGAGAAAAAAAAA						: 649
LpMDHa3 :	TTTTGAACTGGTACATTAAACGAACAATTGCTGATGCACCTTTGAGAAAAAAAAA						: 649
LpMDHa4 :	-----						: -
LpMDHa5 :	TTTTGAACTGGTACATTAAACGAACAATTGCTGATGCACCTTTGAGAACCGGCTTTGGG						: 557
LpMDHa6 :	TTTTGAACTGGTACATTAAACGAACAATTGCTGATGCACCTTTGAGAACCGTCTTTGGTG						: 377
LpMDHa7 :	TTTTGAACTGGTACATTAAACGAACAATTGCTGATGAGAAAAA						: 345

	*	680	*	
LpMDHa1 :	-----			: -
LpMDHa2 :	-----			: -
LpMDHa3 :	-----			: -
LpMDHa4 :	-----			: -
LpMDHa5 :	GTGANTCCATTGGTCTTCAAGCTTAACGAANAANAAAA			: 589
LpMDHa6 :	GTGANTCCATTGGTCTTCAAGCTTAACGAANAANAAAA			: 413
LpMDHa7 :	-----			: -

FIGURE 13 (cont.)

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LpMDHb : TTTGGTNCCTTTTGCCGAGCGAGAAAGCTGTTTCGGTGTCAACCACCCTTGNGTTGTTCGTGC : 60
 * 20 * 40 * 60

LpMDHb : TAAAACTTTCTACGCTGGGAAGGCAAACGTGCCAGTCACTGGGGTGAATGTTCTGTGT : 120
 * 80 * 100 * 120

LpMDHb : TGGTGGCCATGCTGGTGTACTATCCTGCCACAGTTCTCACAGGCTACTCCTGCAAGTAA : 180
 * 140 * 160 * 180

LpMDHb : TGCATTGTCCCATGAGGACCTTAAGGCCCTCACCAAGAGGACACAAGATGGTGGGACGGA : 240
 * 200 * 220 * 240

LpMDHb : AGTTGTTGAAGCAAAGGCTGGAAAGGGCTCAGCAACATTGTCAATGGCATATGCTGGTGC : 300
 * 260 * 280 * 300

LpMDHb : AGTATTTGGAGATGCATGCTTGAAGGGGCTCAATGGAGTTCCTGACATTGTAGAGTGCTC : 360
 * 320 * 340 * 360

LpMDHb : CTTTGTGCAATCAACCGTAACAGAGCTGCCATTCTTTGCCTCCAAGGTAAGGCTCGGCAA : 420
 * 380 * 400 * 420

LpMDHb : GAACGGAGTGGAGGAAGTGATTGGGCTGGGCGAGCTGTCTGCCTTCGAGAAGGAGGGTCT : 480
 * 440 * 460 * 480

LpMDHb : GGAGAGCCTCAAGGGCGAGCTGN TGNCCTCCATCGAGAAGGGTATCAAGTTCGCGCAGGA : 540
 * 500 * 520 * 540

LpMDHb : GAGCTAGTCAACCTGCTCAGATTCTAACACTCCGCACATGAACTCGGTGGGATCTGATGA : 600
 * 560 * 580 * 600

LpMDHb : ATTTTGGTACGACTCCTTTCACTGCCCCCTTCTCCTGGGGACATTGAGGCGTCGNGCTC : 660
 * 620 * 640 * 660

LpMDHb : CACAATAAAATGGCGTGNCTTGTTGCCATACTGAACTGAACTTGTAATACCAGAAAGAGT : 720
 * 680 * 700 * 720

LpMDHb : GAAACCCTGTGCCTTATGTACCACAGTACGGTGAACCCGAAAATCATGAAGGTAGCAGAA : 780
 * 740 * 760 * 780

LpMDHb : GATTCTGTGGAAGCTTTTTTCTTTTAN : 807
 * 800

FIGURE 14

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LpMDHb : * 20 * 40 * 60
 : LXLLPSEKAVRCHHPXVVRAKTFYAGKANVPVTGVNVPVVGGHAGVTILPQFSQATPASN : 60

 * 80 * 100 * 120
LpMDHb : ALSHEDLKALTKRTQDGGTEVVEAKAGKGSATLSMAYAGAVFGDACLKGLNGVPDIVECS : 120

 * 140 * 160 * 180
LpMDHb : FVQSTVTELPFFASKVRLGKNGVEEVIGLGELSAFEKEGLESLKGELXXSIEKGIKFAQE : 180

LpMDHb : S : 181

FIGURE 15

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	* 20 * 40 * 60	
LpMDHb1 :	TTTGGTNCCTTTTGCCGAG-NANATACTGTTCCGGTGTCAACCACCCTTGNGTTGTTTCGTGCT	: 60
LpMDHb2 :	-----GCGAGAGAGCTGTTTGGTGTCAACCACCCTTGTTGTTGTTTCGTGCT	: 44
	* 80 * 100 * 120	
LpMDHb1 :	AAAACCTTTCTACGCTGGGAAGGCAAACGTGCCAGTCACTGGGGTGAATGTTTCCTGTTGTTG	: 121
LpMDHb2 :	AAAACCTTTCTACGCTGGGAAGGCAAACGTGCCAGTCACTGGGGTGAATGTTTCCTGTTGTTG	: 105
	* 140 * 160 * 180	
LpMDHb1 :	GTGGCCATGCTGGTGTACTATCCTGCCACGTTCTCACAGGCTACTCCTGCAAGTAATGC	: 182
LpMDHb2 :	GTGGCCATGCTGGTGTACTATCCTGCCACAGTTCTCACAGGCTACTCCTGCAAGTAATGC	: 166
	* 200 * 220 * 240	
LpMDHb1 :	ATTGTCCCATGAGGACTTAAGGCCCTCACCAAGAGGACACAAGATGGTGGGACGGAAGTT	: 243
LpMDHb2 :	ATTGTCCCATGAGGACCTTAAGGCCCTCACCAAGAGGACACAAGATGGTGGGACGGAAGTT	: 227
	* 260 * 280 * 300	
LpMDHb1 :	GTTGAAGCAAAGGCTGGAAGGGCTCAGCAACATTGTCAATGGCATATGCTGGTGCAGTAT	: 304
LpMDHb2 :	GTTGAAGCAAAGGCTGGAAGGGCTCAGCAACATTGTCAATGGCATATGCTGGTGCAGTAT	: 288
	* 320 * 340 * 360	
LpMDHb1 :	TTGGAGATGCATGCTTGAAGGGGCTCAATGGAGTTCCTGACATTGTAGAGTGCTCCTTTTGT	: 365
LpMDHb2 :	TTGGAGATGCATGCTTGAAGGGGCTCAATGGAGTTCCTGACATTGTAGAGTGCTCCTTTTGT	: 349
	* 380 * 400 * 420	
LpMDHb1 :	GCAATCAACGTAACAGAGCTGCCATTCTTTGCCTCCAAGGTAAGGCTCGGCAAGAACGGA	: 426
LpMDHb2 :	GCAATCAACCGTAACAGAGCTGCCATTCTTTGCCTCCAAGGTAAGGCTCGGCAAGAACGGA	: 410
	* 440 * 460 * 480	
LpMDHb1 :	GTGGAGGAAGTGATTGGGCTGGGCGAGCTGTCTGCCTTCGAGAAGGAGGGTCTGGAGAGCC	: 487
LpMDHb2 :	GTGGAGGAAGTGATTGGGCTGGGCGAGCTGTCTGCCTTCGAGAAGGAGGGTCTGGAGAGCC	: 471
	* 500 * 520 * 540	
LpMDHb1 :	TCAAGGGCGAGCTGNTGNCCTCCATCGAGAAGGGTATCAAGTTCGCGCAGGAGAGCTAGTC	: 548
LpMDHb2 :	TCAAGGGCGAGCTGNTGNCCTCCATCGAGAAGGGTATCAAGTTCGCGCAGGAGAGCTAGTC	: 532
	* 560 * 580 * 600 *	
LpMDHb1 :	AACCTGCTCAGATTCTGACACTCCGACATGAACCTCGGTGGGATCTGATGAATTTTGGTA	: 609
LpMDHb2 :	AACCTGCTCAGATTCTAACACTCCGCACATGAACCTCGGTGGGATCTGATGAATTTTGGTT	: 593
	620 * 640 * 660 *	
LpMDHb1 :	CGACTCCTTTCTGCCCCCTTTTCGTGGGGACATTGAGGCGTTGNGCTTCACATTAAAAAT	: 670
LpMDHb2 :	CGACTCCTTTCACTGCCCCCTTCTCCTGGGGACATTGAGGCGTCTGCTCCACAATAAAAT	: 654

FIGURE 16

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	680	*	700	*	720	*	
LpMDHb1 :	GGCGTGNN	TTGTTG	CATACTG	ANCTGAG	CCTTNTATTCN	-----	: 708
LpMDHb2 :	GGCGTG	CTTGTG	TGCCATA	CTGAAC	TGAAC	TGTAATACCAGAAAGAGTGAAACCCTGTGC	: 715
	740	*	760	*	780	*	
LpMDHb1 :	-----						: -
LpMDHb2 :	CTTATGTACCACAGTACGGTGAACCCGAAAATCATGAAGGTAGCAGAAGATTCTGTGGAAG						: 776
	800						
LpMDHb1 :	-----						: -
LpMDHb2 :	CTTTTTC	TTTTAN					: 790

FIGURE 16 (cont.)

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LpMDHc : GNNGGTNTACCGAGCGCNCATACTTTNGTGGGTGAGGTTCTTGGACTNGACCCAAGAGAT : 60

LpMDHc : GTCAATGTTCTGTNGNTGGCGGGCATGCCGAGTTACNATATTGCCACTCCTTTTCGCAG : 120

LpMDHc : GTTAATCCTCCCTGCTCATTACCATGAGGAAATTAGTATCTCACCTTCACAGCATACAG : 180

LpMDHc : AATGGTGGGACAGAAGTNGTCGAGGCGAAAGCTGGAGCAGGATCGGNNACTNTTTCTATG : 240

LpMDHc : GCGNATGCGGCAGCTAAATTTGCAGATGCTTGCTNGAGAGGATTGCATGGTGATGCTGGG : 300

LpMDHc : ATAGNGGANTGCTCTTATGTGGATTCTCAGGTGACGGANCTNTCTTTNTTTGCATCCAAA : 360

LpMDHc : GTTCGCCTTGGTTGTTCTGGCGTCNAGGAGATCTTGCCACTTGGTCCACTCAACGAGTN : 419

FIGURE 17

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LpMDHc : XGXPSXHTXVGEVLGXDPDVNPXXGGHAGVXILPLLSQVNPPCSFTMRKLVSHLHSIQ : 60

LpMDHc : NGGTEXVEAKAGAGSXTXSMAAAKFADACXRGLHGDAGIXXCSYVDSQVTXXSXFASK : 120

LpMDHc : VRLGCSGVXEILPLGPLNE : 139

FIGURE 18

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* 20 * 40 * 60
 LpMDHd : GNGNTTCGCAACACAACACCACCGCTCCCCCGTCCGCATCTCTCCCTTTTCGCCTCCAT : 60

* 80 * 100 * 120
 LpMDHd : CGATCCAGATCCCACACACCGCCGCGAGCCAGCAACGATGAGGCCGTCCGGCGATGAGATCC : 120

* 140 * 160 * 180
 LpMDHd : GCCGCGCAGCTCCTCCGCCGCCGCGAGCTACTCGTCCGCGTCCGGCCAGCCGGAGCGGAAG : 180

* 200 * 220 * 240
 LpMDHd : GTGGCCATCCTCGGCGCGGCCGGCGGGATCGGGCAGCCGCTGGCGCTCCTCATGAAGCTG : 240

* 260 * 280 * 300
 LpMDHd : AACCCGCTCGTCTCCTCCCTCTCCCTCTACGACATCGCCGCCACCCCGGCGTCGCCGCC : 300

* 320 * 340 * 360
 LpMDHd : GACGTCTCCACATCAACTCCCCGGCCCTGGTGAAGGGTTTCATGGGCGACGATCAGCTC : 360

* 380 * 400 * 420
 LpMDHd : GCGGAGGCGTTGGAGGGGGCCGACCTCGTCATCATCCCGGCCGGCGTTCCGAGGAAGCCC : 420

* 440 * 460 * 480
 LpMDHd : GGCATGACCAGGGACGATCTCTTCAACATCAACGCCGGCATCGTTAAGAACCTCTGCACC : 480

* 500 * 520 * 540
 LpMDHd : GCCATCGCCAAGTACTGCCCCAACGCTCTTATCAACATGATCAGCAACCCTGTGAACTCA : 540

* 560 * 580 * 600
 LpMDHd : ACTGTTCCAATTGCTGCTGAAGTTTTCAAGAAGGCTGGAACCTATGATGAGAAGAAGTTG : 600

* 620 * 640 * 660
 LpMDHd : TTTGGTGTGACCACTCTTGATGTTGTTTCGTGCCAGGACTTCTATGCTGGGAAGGCTAAT : 660

* 680 * 700 * 720
 LpMDHd : GTACCTGTTACTGGTGTGAACGTTCCCTGTTGTTGGTGGTCATGCTGGTATCACCATTCTG : 720

* 740 * 760 *
 LpMDHd : CCACTGTTCTCACAGGCAACTCCTTCGACTAATGCATTGTCTAGTGAAGACATN : 774

FIGURE 19

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* 20 * 40 * 60
 LpMDHd : XXPPTQHHRSPVRISPFRLHRSRSHTPPQPATMRPSAMRSAAQLLRRRSYSSASGQPERK : 60

* 80 * 100 * 120
 LpMDHd : VAILGAAGGIGQPLALLMKLNPLVSSLSLYDIAATPGVAADVSHINSPALVKGFMGDDQL : 120

* 140 * 160 * 180
 LpMDHd : AEALEGADLVIIIPAGVPRKPGMTRDDL FNINAGIVKNLCTAIKYCPNALINMISNPVNS : 180

* 200 * 220 * 240
 LpMDHd : TVPIAAEVFKKAGTYDEKKLFGVTTLDVVRARTFYAGKANVPVTGVNVPVVGGHAGITIL : 240

*
 LpMDHd : PLFSQATPSTNALSSDX : 258

FIGURE 20

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LpMDHe : TCCGTACNATTGCTGCTGAAGTATTTAAAAAAGCTGGGACATACAATCCTAAGAGATTGT : 60
 * 20 * 40 * 60

LpMDHe : TGGGGGTGACAACTTGATGTAGTGAGAGCCAATACTTTGTGGGTGAGGTTCTTGGAC : 120
 * 80 * 100 * 120

LpMDHe : TTGACCCAGAGATGTCAATGTTCTGTTGTTGGCGGCATGCCGGAGTTACGATATTAC : 180
 * 140 * 160 * 180

LpMDHe : CACTCCTTTTCGACAGGTTAGTCCTCCCTGCTCGTTACCCCTGAGGAAATTAGTTATCTCA : 240
 * 200 * 220 * 240

LpMDHe : CCTCACGCATACAGAATGGTGGGACAGAAGTTGTGGAGGCGAAAGCAGGAGCAGGATCGG : 300
 * 260 * 280 * 300

LpMDHe : CAACTCTTTCTATGGCGTATGCGGCAGCTAAATTTGCAGATGCTTGCTTGAGAGGATTGC : 360
 * 320 * 340 * 360

LpMDHe : ATGGTGATGCTGGGATAGTGAGTGCTCTTATGTGGATTCTCAGGTGACCGGAAGTGCCT : 420
 * 380 * 400 * 420

LpMDHe : TCTTTGCATCCAAAGTTCGCCTAGGTCGTTCTGGCGTCGAGGAGATCTTGCAACTTGGGT : 480
 * 440 * 460 * 480

LpMDHe : CCACTGAACCAGGTTTTTGAAAGANCTGGACTGGAANAAGGCGAAANAANGAGCTATCCCG : 540
 * 500 * 520 * 540

LpMDHe : AGAGCCTTCCAGAAAGGNTGTGTCATTTCTGTCNCAACAAAGTGAGTTACATGCCATCATCT : 600
 * 560 * 580 * 600

LpMDHe : TTGTTGGATGTGCTTCCCCAAAGTTCCAACACACCGTCGNAATTGGCATATANATATTGC : 660
 * 620 * 640 * 660

LpMDHe : TGGTTTGGGGCCTTTTGCNTTNATGCAAACAGGCTACCTTNTGGGTGGGGGGGGTCCGTT : 720
 * 680 * 700 * 720

LpMDHe : NTGAAAACTCTTAACATTTTTTTTTACGTTGGNAACAAAATNTNTGAAAAGCCTGAGA : 780
 * 740 * 760 * 780

LpMDHe : ANTATATGATAANTGAANAAAGTTTNNAAAAAAN : 816
 * 800 *

FIGURE 21

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LpMDHe : RXIAAEVFKKAGTYNPKRLLGVTTLDVVRANTFVGEVLGLDPRDVNVPVVGGHAGVTILP : 60

LpMDHe : LLSQVSPPCSFTPEEISYLTSTRIQNGGTEVVEAKAGAGSATLSMAYAAAKFADACLRLH : 120

LpMDHe : GDAGIVECSYVDSQVTGTAFFASKVRLGRSGVEEILQLGSTEPGFERXGLEXGEXXSYPE : 180

LpMDHe : SLPERXCHFXQQSELHAIIFVGCASPKFQHTVXIGIXILLVWGLLXXCKQATXWVGVRX : 240

LpMDHe : EKLLTFFFTVXNKXXEKPEXYMIXEXSXXXK : 271

FIGURE 22

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LpMDHf : GGGATGATTNATNCAACAAAAATGCTGGGCATTGTCCGATCAATCTGTGAGGGCGTTGCC : 60
 * 20 * 40 * 60

LpMDHf : AAGAGCTGTCTAATGCAATAGTGAATTTGATCAGCAACCCTGTGAACTCAACTGTCCCC : 120
 * 80 * 100 * 120

LpMDHf : ATTGCGGCAGAAGNTTTCAGAGGGCTGGAACCTACTGCCCCAAACGTCTCCTTGGAGTG : 180
 * 140 * 160 * 180

LpMDHf : ACAACTCTTGATGTAGCGAGGGCTAACACCTTTGTGGCTGAAGTGCTTGGAGNTGATCCT : 240
 * 200 * 220 * 240

LpMDHf : AGAGAAGNCAGTGTTCCGNTGTTGGCGGGCATGCAGGGATCACTATATTGCCCCCTCTG : 300
 * 260 * 280 * 300

LpMDHf : NCCCAGGTCAGCCCCCGTGCTCATTCCTCCAGATGAAATCAGCTATTTGACTAACCGC : 360
 * 320 * 340 * 360

LpMDHf : ATACAGAATGGCGGTACCGAAGTTGTTGAGGCAAAGGCTGGAGCAGGCTCTGCAACTTTG : 420
 * 380 * 400 * 420

LpMDHf : TCAATGGCTTTTGTGCTGCAAAATTCGCCGATGCATGCTTGCGTGGAATGCGTGGTGAT : 480
 * 440 * 460 * 480

LpMDHf : GCTGGCATTGTGGAATGTNCATACGTTGCATCTGAGGTGACAGAGCTGCCGTTCTTTGCA : 540
 * 500 * 520 * 540

LpMDHf : ACAAAGTGAGGTTAGGTCGTGGCGGAGCTGAGGAGATCCTCCCTCTTGGGCCACTGAAT : 600
 * 560 * 580 * 600

LpMDHf : GACTTTGAGAGAGCTGGCCTGGAGAAGGCGAANAAGGAGCTCAGCGAGAGCATCCAGAAG : 660
 * 620 * 640 * 660

LpMDHf : GGTGTGGCGTTCATGAACAAGTGAGATCATATGAATGGATGGATACCCCGCAACCTATAC : 720
 * 680 * 700 * 720

LpMDHf : ATAGATGATGCAAAGACTAAAGAAAGAGTGTGATATAGTGCTCCTATATACCTGTAAAT : 780
 * 740 * 760 * 780

LpMDHf : CTCTCCTGCCTGTAAGAA : 798
 *

FIGURE 23

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LpMDHf : * 20 * 40 * 60
MLGIVRSICEGVAKSCPNNAIVNLISNPVNSTVPIAAEXFKRAGTYCPKRLLGVTTLDDVAR : 60

LpMDHf : * 80 * 100 * 120
ANTFVAEVLGXDPREXSVXPXVGGHAGITILPLLXQVSPPCSFTPDEISYLTNRIQNGGTE : 120

LpMDHf : * 140 * 160 * 180
VVEAKAGAGSATLSMAFAAAKFADACLGRMRGDAGIVECXVASEVTLPFFATKVRLGR : 180

LpMDHf : * 200 * 220
GGAEIILPLGPLNDFERAGLEKAXKELSESIQKGVAFMNK : 220

FIGURE 24

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	* 20 * 40 * 60	
LpMDHf1 :	GNNNTGATTNATNCAACAAAAATGCTGGGCATTGTCCGATCAATCTGTGAGGGCGTTGCC	: 60
LpMDHf2 :	-GGATGATTGATCAACAAAAATGCTGGG-ATTGTCCGATCAATCTGTGAGGGCGTTGCC	: 58
	* 80 * 100 * 120	
LpMDHf1 :	AAGAGCTGTCCTAATGCAATAGTGAATTTGATCAGCAACCCTGTGAACTCAACTGTCCCC	: 120
LpMDHf2 :	AAGAGCTGTCCTAATGCAATAGTGAATTTGATCAGCAACCCTGTGAACTCAACTGTCCCC	: 118
	* 140 * 160 * 180	
LpMDHf1 :	ATTGCGGCAGAAAGNTTTCAAGAGGGCTGGAACCTTACTGCCCCAAACGTCTCCTTGGAGTG	: 180
LpMDHf2 :	ATTGCGGCAGAAAGTTTCAAGAGGGCTGGAACCTTACTGCCCCAAACGTCTCCTTGGAGTG	: 178
	* 200 * 220 * 240	
LpMDHf1 :	ACAACTCTTGATGTAGCGAGGGCTAACACCTTTGTGGCTGAAGTGCTTGAGNTGATCCT	: 240
LpMDHf2 :	ACAACTCTTGATGTAGCGAGGGCTAACACCTTTGTGGCTGAAGTGCTTGGAGTTGATCCT	: 238
	* 260 * 280 * 300	
LpMDHf1 :	AGAGAAGNCAGTGTTCCGGNTGTTGGCGGGCATGCNNGGATCACTATATTGCCCTCCTG	: 300
LpMDHf2 :	AGAGAAGNCAGTGTTCCGGTTGTTGGCGGGCATGCAGGGATCACTATATTGCCCTCCTG	: 298
	* 320 * 340 * 360	
LpMDHf1 :	NCCCAGGTCAGCCCCCGTGCTCATTCACTCCAGATGAAATCAGCTATTTGACTAACCGC	: 360
LpMDHf2 :	CCCAGGTCAGCCCCCGTGCTCATTCACTCCAGATGAAATCAGCTATTTGACTAACCGC	: 358
	* 380 * 400 * 420	
LpMDHf1 :	ATACAGAATGGCGGTACCGAAGTTGTTGAGGCAAAGGCTGGAGCAGGCTCTGCAACTTTG	: 420
LpMDHf2 :	ATACAGAATGGCGGTACCGAAGTTGTTGAGGCAAAGGCTGGAGCAGGCTCTGCAACTTTG	: 418
	* 440 * 460 * 480	
LpMDHf1 :	TCAATGGCTTTTGCTGCTGCAAAATTCGCCGATGCATGCTTGCGTGGAATGCGTGGTGAT	: 480
LpMDHf2 :	TCAATGGCTTTTGCTGCTGCAAAATTCGCCGATGCATGCTTGCGTGGAATGCGTGGTGAT	: 478
	* 500 * 520 * 540	
LpMDHf1 :	GCTGGCATTGTGGAATGTCATACGTTGCATCTGAGGTGACAGAGCTGCCGTTCTTTGCA	: 540
LpMDHf2 :	GCTGGNATTGTGGAATGTN-----	: 497
	* 560 * 580 * 600	
LpMDHf1 :	ACAAAAGTGAGGTTAGGTCGTGGCGGAGCTGAGGAGATCCTCCCTCTTGGGCCACTGAAT	: 600
LpMDHf2 :	-----	: -
	* 620 * 640 * 660	
LpMDHf1 :	GACTTTGAGAGAGCTGGCCTGGAGAAGGCGAANAAGGAGCTCAGCGAGAGCATCCAGAAG	: 660
LpMDHf2 :	-----	: -

FIGURE 25

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		*		680		*		700		*		720	
LpMDHf1 :		GGTGTGGCGTTCATGAACAAGTGAGATCATATGAATGGATGGATACCCCGCAACCTATAC											: 720
LpMDHf2 :		-----											: -
		*		740		*		760		*		780	
LpMDHf1 :		ATAGATGATGCAAAGACTAAAGAAAGAGTGTGATATAGTGCTCCTATATACCTGTAAAT											: 780
LpMDHf2 :		-----											: -
						*							
LpMDHf1 :		CTCTCCTGCCTGTAAGAA											: 798
LpMDHf2 :		-----											: -

FIGURE 25 (cont.)

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LpMDHg : CAATTGCACGTTCTTGCTCACTTCAGCATCACCCCTCAGCTTCTCCTACACAACCCCTCC : 60
 * 20 * 40 * 60

LpMDHg : CAACCGTCACTATGGTCAAGGCTGTCGTCGAGGTGCTGCTGGTGGTATCGGCCAGCCCC : 120
 * 80 * 100 * 120

LpMDHg : TCTCTCTTCTACTCAAGACGAGCCCCCTCATCGATGAGCTTGCCCTCTACGATGTTGTCA : 180
 * 140 * 160 * 180

LpMDHg : AACTCCCGGTGTTGCCGCTGATCTTCCCACATCTCATCCGCGCTCAAATCGCCGGCT : 240
 * 200 * 220 * 240

LpMDHg : ACCTCCCCAAGGATGATGGCGCAAAGGCTGCATTCAAAGATGCCGACATTATCGTCATCC : 300
 * 260 * 280 * 300

LpMDHg : CCGCCGGCATTCTCGCAAGCCTGGCATGACCCGTGATGACCTCTTCAACATCAACGCCG : 360
 * 320 * 340 * 360

LpMDHg : GAATTGTCAAGGGTCTGATTGAGGTTGCCGCCGAAGTTGCCCCAAGGCCTTCATTCTGG : 420
 * 380 * 400 * 420

LpMDHg : TCATCTCCAACCCTGTCAACTCTACCGTCCCTATCTCTGCCGAGGTCCTCAAGGCCAAGG : 480
 * 440 * 460 * 480

LpMDHg : GCGTCTTCAACCCTCAGCGTCTTTTCGGTGTCACCACCCTCGACATCGTCCGTGCCGAGA : 540
 * 500 * 520 * 540

LpMDHg : CTTTCGTCGCCAGCATCACCGGCGAGAAGCAGCCCCAGAACTTGACCGTCCCCGTCATTG : 600
 * 560 * 580 * 600

LpMDHg : GCGGCCACTCCGGCGAGACCATCGTCCCGCTTTTCAGCAAGGNTCAGCCCTCTGCTTNCA : 660
 * 620 * 640 * 660

LpMDHg : TTCCCGC : 667

FIGURE 26

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LpMDHg : IARSCSLQHHPHASPTQPLPTVTMVKAVVAGAAGGIGQPLSLLLKTSPLIDELALYDVVN : 60

LpMDHg : TPGVAADLSHISSRAQIAGYLPKDDGAKAAFKDADIIVIPAGIPRKPGMTRDDLFNINAG : 120

LpMDHg : IVKGLIEVAAEVAPKAFILVISNPVNSTVPISAEVLKAKGVFNPQRLFGVTTLDIVRAET : 180

LpMDHg : FVASITGEKQPQNLTVPVIGGHSGETIVPLFSKXQPSAXIP : 221

FIGURE 27

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LpMDHh : * 20 * 40 * 60
 TNACGGAGCTGCTTAAATCAGCCCCCATTCGCCTCGTCTATAGCGATCCTTCATCCCGT : 60

LpMDHh : * 80 * 100 * 120
 TGTCTGCGCTCCTCCCGAACCACTCTCCCCATCCCGAACTCCAGAACCGGCTCCAATG : 120

LpMDHh : * 140 * 160 * 180
 GCGGCGAAGGAACCGATGCGCGTGCTCGTCACCGGCGCCGCAGGACAAATTGGATATGCT : 180

LpMDHh : * 200 * 220 * 240
 CTTGTTCCGATGATTGCTAGGGGAATTATGCTTGGTGCGGACCAGCCTGTTATTCTGCAT : 240

LpMDHh : * 260 * 280 * 300
 ATGCTGGATATTCCACCAGCTGCTGAAGCTCTTAATGGTGTTAAGATGGAGTTGGTTGAT : 300

LpMDHh : * 320 * 340 * 360
 GCCGCATTTCCACTTCTCAAGGGAGTTGTTGCAACAACCTGATGTTGTTGAGGCTTGCACT : 360

LpMDHh : * 380 * 400 * 420
 GGTGTGAATGTTGCGGTTATGGTTGGTGGATTCCCCAGGAAGGAGGGAATGGAAAGGAAG : 420

LpMDHh : * 440 * 460 * 480
 GATGTTATGTCTAAGAATGTTTCAATCTACAAATCTCAAGCATCTGCCCTTGAAGCCCAT : 480

LpMDHh : * 500 * 520 * 540
 GCAGCCCCGAATTGCAAGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATC : 540

LpMDHh : * 560 * 580 * 600
 TTAAAGGAGTTTGCTCCATCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCCTAGAC : 600

LpMDHh : * 620 * 640 * 660
 CATAACAGGGCACTTGGTCAGATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAG : 660

LpMDHh : * 680 * 700 * 720
 AATGTTATCATCTGGGGCAATCACTCTTCAGTCAGTACCCCTGATGTGAACCACGCCACC : 720

LpMDHh : * 740 * 760 * 780
 GTGAAGACTTCCAGTGGCGAGAAGCCTGTTGCGGAACCTGTTAAAGACGATGAATGGCTA : 780

LpMDHh : * 800 * 820 * 840
 AATGCAGGGTTCAATTGCCACTGTCCAGCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAG : 840

FIGURE 28

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LpMDHh : * 860 * 880 * 900
 : CTCTCCAGTGCTCTCTCTGCTGCCAGCTCTGCTTGTGACCACATCCGTGATTGGGTCTC : 900

LpMDHh : * 920 * 940 * 960
 : GGAACCCCTGAGGGAACATTGTTTCCATGGGTGTGTATTCTGATGGTTCATACGGTGTG : 960

LpMDHh : * 980 * 1000 * 1020
 : CCTGCTGGGCTTATCTACTCCTTCCCAGTAACCTGCTGCGGTGGTGAATGGACAAATTGTT : 1020

LpMDHh : * 1040 * 1060 * 1080
 : CAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGAAGATGGATGCCACAGCCCAGGAGCTC : 1080

LpMDHh : * 1100 * 1120 * 1140
 : TCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAGTAACTGCATACCAGGGAGCAGCTG : 1140

LpMDHh : * 1160 * 1180 * 1200
 : CCGCTCTGATGTTTTGAATAAAAGGAACATTTTGGCTCCATGAAACTCATCTCCACTCAG : 1200

LpMDHh : * 1220 * 1240 * 1260
 : AACAGTTGCACATCGCGGTGCCTTTAGCTGGTTTTTCCAGTGTGTATGAATGAGGCTTTT : 1260

LpMDHh : * 1280 * 1300 * 1320
 : GTAGCTCTATTTTCGCCTGATGATTTACAGGACAGGATATTGGCAGGAAGATTGGAACAA : 1320

LpMDHh : * 1340 * 1360 * 1380
 : TTTGACGTCTGATTAAAACCAACCTCTTATTATTCCTGTGTGTATGAATGAGGCTTTTGT : 1380

LpMDHh : * 1400 * 1420 * 1440
 : AGCTCTATTTTCGCCTGATGATTTACAGGCCATGATATTGGCAGGAGGATTGGAACAATT : 1440

LpMDHh : * 1460 * 1480
 : TGACGCCTGATTAAAACCAACCTCTTATTACTAAAAAAAAAAAA : 1484

FIGURE 28 (cont.)

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* 20 * 40 * 60
 LpMDHh : MAAKEPMRVLVTGAAGQIGYALVPMIARGIMLGADQPVILHMLDIPPAEALNGVKMELV : 60

* 80 * 100 * 120
 LpMDHh : DAAFPLLKGVVATTDVVEACTGVNVAVMVGGFPRKEGMEKDVMSKNVSIYKSQASALEA : 120

* 140 * 160 * 180
 LpMDHh : HAAPNCKVLVVANPANTNALILKEFAPSIPEKNISCLTRLDHNRALGQISERLDVQVSDV : 180

* 200 * 220 * 240
 LpMDHh : KNVLIWGNHSSSQYPDVNHATVKTSSGEKPVRELVKDDWLNAGFIATVQQRGAALIKAR : 240

* 260 * 280 * 300
 LpMDHh : KLSSALSAASSACDHIRDWVLGTPEGTFVSMGVYSDGSYGVPAGLIYSFPVTCCGGEWTI : 300

* 320 *
 LpMDHh : VQGLPIDEF SRKKMDATAQELSEEKALAYSCLE : 333

FIGURE 29

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		*	20	*	40	*	60	
LpMDHh1	:	TNACGGAGCTGCTTAAATCAGCCCCCATTCCGCCTCGTCT	-	AC	ATCCTTCATCCC	CGTTG	:	60
LpMDHh2	:	-----	-----	CGGNTT	TACCTGT	-----	:	29
LpMDHh3	:	-----	-----	CGGTAT	CCCTTGNTACA	CGNTGTG	:	24
LpMDHh4	:	-----	-----	CTTTACCGT	TNCTAC	CGNTGTG	:	22
LpMDHh5	:	-----	-----	-----	ATACCTT	CGTCCC	CGTTG	20
LpMDHh6	:	-----	-----	-----	GNNT	CCCTT	ATCCC	CGTTG
LpMDHh7	:	-----	-----	-----	GCCTT	CGT	ATCCC	CGTTG
LpMDHh8	:	-----	-----	-----	GCTATCCTTCATCCC	CGTTG	:	19
LpMDHh9	:	-----	-----	-----	GCTATCCTTCATCCC	CGTTG	:	19
LpMDHh10	:	-----	-----	-----	NTACCTT	CGTCCC	CGTTG	18
LpMDHh11	:	-----	-----	-----	GNNT	CGT	ATCCC	CGTTG
LpMDHh12	:	-----	-----	-----	CTATCCTT	ATCCC	CGTTG	17
LpMDHh13	:	-----	-----	-----	GATCCTT	ATCCC	CGTTG	16
LpMDHh14	:	-----	-----	-----	GNNT	CGT	ATCCC	CGTTG
LpMDHh15	:	-----	-----	-----	GATCCTT	CGTCCC	CGTTG	17
LpMDHh16	:	-----	-----	-----	GNTCCTTCATCCC	CGTTG	:	17
LpMDHh17	:	-----	-----	-----	GATCCTT	ATCCC	CGTTG	16
LpMDHh18	:	-----	-----	-----	GNTCCTTCATCCC	CGTTG	:	17
LpMDHh19	:	-----	-----	-----	GNTCCTTCATCCC	CGTTG	:	17
LpMDHh20	:	-----	-----	-----	GATCCTT	NTCCC	CGTTG	16
LpMDHh21	:	-----	-----	-----	GNTCCTTCATCCC	CGTTG	:	17
LpMDHh22	:	-----	-----	-----	GATCCTT	CGTCCC	CGTTG	17
LpMDHh23	:	-----	-----	-----	GNCTT	ATCCC	CGTTG	16
LpMDHh24	:	-----	-----	-----	GNTCCTTCATCCC	CGTTG	:	16
LpMDHh25	:	-----	-----	-----	TCCTT	ATCCC	CGTTG	16
LpMDHh26	:	-----	-----	-----	TCCTT	ATCCC	CGTTG	15
LpMDHh27	:	-----	-----	-----	ACCTTCT	CGTCCC	CGTTG	15
LpMDHh28	:	-----	-----	-----	TCCTT	NTCCC	CGTTG	14
LpMDHh29	:	-----	-----	-----	TCCTT	ATCCC	CGTTG	14
LpMDHh30	:	-----	-----	-----	TCCTT	ATCCC	CGTTG	15
LpMDHh31	:	-----	-----	-----	CTTCATCCC	CGTTG	:	14
LpMDHh32	:	-----	-----	-----	NCCTT	ATCCC	CGTTG	14
LpMDHh34	:	-----	-----	-----	TCCTT	ATCCC	CGTTG	14
LpMDHh35	:	-----	-----	-----	CTT	ATCCC	CGTTG	13
LpMDHh36	:	-----	-----	-----	TTTCTTCC	CGTCCC	CGTTG	13
LpMDHh37	:	-----	-----	-----	TTTCTTCC	CGTCCC	CGTTG	13
LpMDHh38	:	-----	-----	-----	NTTCATCCC	CGTTG	:	13
LpMDHh39	:	-----	-----	-----	TTTCATCCC	CGTTG	:	12
LpMDHh40	:	-----	-----	-----	TTTCATCCC	CGTTG	:	12
LpMDHh41	:	-----	-----	-----	NTTATCCC	CGTTG	:	12
LpMDHh42	:	-----	-----	-----	NTTATCCC	CGTTG	:	12
LpMDHh43	:	-----	-----	-----	GTCTNTCCC	CGTTG	:	12
LpMDHh44	:	-----	-----	-----	TT	NTCCC	CGTTG	11
LpMDHh45	:	-----	-----	-----	TTT	TCCCC	CGTTG	11
LpMDHh46	:	-----	-----	-----	TTT	TCCCC	CGTTG	11
LpMDHh47	:	-----	-----	-----	TCCCC	CGTTG	:	8
LpMDHh48	:	-----	-----	-----	CG	TTG	:	5
LpMDHh49	:	-----	-----	-----	CCGTTG	:	:	6
LpMDHh50	:	-----	-----	-----	-----	-----	:	-
LpMDHh51	:	-----	-----	-----	-----	-----	:	-
LpMDHh52	:	-----	-----	-----	-----	-----	:	-
LpMDHh53	:	-----	-----	-----	-----	-----	:	-
LpMDHh54	:	-----	-----	-----	-----	-----	:	-
LpMDHh55	:	-----	-----	-----	-----	-----	:	-
LpMDHh56	:	-----	-----	-----	-----	-----	:	-
LpMDHh57	:	-----	-----	-----	-----	-----	:	-
LpMDHh58	:	-----	-----	-----	-----	-----	:	-
LpMDHh59	:	-----	-----	-----	-----	-----	:	-
LpMDHh60	:	-----	-----	-----	-----	-----	:	-
LpMDHh61	:	-----	-----	-----	-----	-----	:	-
LpMDHh62	:	-----	-----	-----	-----	-----	:	-
LpMDHh63	:	-----	-----	-----	-----	-----	:	-
LpMDHh64	:	-----	-----	-----	-----	-----	:	-

FIGURE 30

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		*	80	*	100	*	120
LpMDHh1	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 122
LpMDHh2	:	T-G-C-T-N-T-G-C-T-N	-AACC	ACTCTCCCCA	NCCCCGA	ACTCCAGA	ACCGGCTCCA : 88
LpMDHh3	:	GGTTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 86
LpMDHh4	:	GGTTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 83
LpMDHh5	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 82
LpMDHh6	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 80
LpMDHh7	:	TGG-C-T-N-T-C-T-C-C	-GACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh8	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 81
LpMDHh9	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 81
LpMDHh10	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 79
LpMDHh11	:	TCGTCACCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 80
LpMDHh12	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh13	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 77
LpMDHh14	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh15	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh16	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh17	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 77
LpMDHh18	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh19	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh20	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 77
LpMDHh21	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh22	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 78
LpMDHh23	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 77
LpMDHh24	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 77
LpMDHh25	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 77
LpMDHh26	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 76
LpMDHh27	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 77
LpMDHh28	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 75
LpMDHh29	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 75
LpMDHh30	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 76
LpMDHh31	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 75
LpMDHh32	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 76
LpMDHh34	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 75
LpMDHh35	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCAGA	ACCGGCTCCA	ATGGCGG : 75
LpMDHh36	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 74
LpMDHh37	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 75
LpMDHh38	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 74
LpMDHh39	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 74
LpMDHh40	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 73
LpMDHh41	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 73
LpMDHh42	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 72
LpMDHh43	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 73
LpMDHh44	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 72
LpMDHh45	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 71
LpMDHh46	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 72
LpMDHh47	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 69
LpMDHh48	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 65
LpMDHh49	:	TCGTCGCCTCCTCCCGA	ACCACTCTCCCCAT	CCCCGA	ACTCCA-A	ACCGGCTCCA	ATGGCGG : 68
LpMDHh50	:	-----GGACC-	CTCTCCCCAT	CCCCGA	ACTCCAGN	ACCGGCTCCA	ATGGCGG : 46
LpMDHh51	:	-----	NCCCCG	NANTCCA-	NACCGGCTCCA	A-GGCGG	: 30
LpMDHh52	:	-----					-
LpMDHh53	:	-----					-
LpMDHh54	:	-----					-
LpMDHh55	:	-----					-
LpMDHh56	:	-----					-
LpMDHh57	:	-----					-
LpMDHh58	:	-----					-
LpMDHh59	:	-----					-
LpMDHh60	:	-----					-
LpMDHh61	:	-----					-
LpMDHh62	:	-----					-
LpMDHh63	:	-----					-
LpMDHh64	:	-----					-

FIGURE 30 (cont)

	*	140	*	160	*	180
LpMDHh1 :	C	G	A	A	G	G
LpMDHh2 :	C	G	A	A	G	G
LpMDHh3 :	C	G	A	A	G	G
LpMDHh4 :	C	G	A	A	G	G
LpMDHh5 :	C	G	A	A	G	G
LpMDHh6 :	C	G	A	A	G	G
LpMDHh7 :	C	G	A	A	G	G
LpMDHh8 :	C	G	A	A	G	G
LpMDHh9 :	C	G	A	A	G	G
LpMDHh10 :	C	G	A	A	G	G
LpMDHh11 :	C	G	A	A	G	G
LpMDHh12 :	C	G	A	A	G	G
LpMDHh13 :	C	G	A	A	G	G
LpMDHh14 :	C	G	A	A	G	G
LpMDHh15 :	C	G	A	A	G	G
LpMDHh16 :	C	G	A	A	G	G
LpMDHh17 :	C	G	A	A	G	G
LpMDHh18 :	C	G	A	A	G	G
LpMDHh19 :	C	G	A	A	G	G
LpMDHh20 :	C	G	A	A	G	G
LpMDHh21 :	C	G	A	A	G	G
LpMDHh22 :	C	G	A	A	G	G
LpMDHh23 :	C	G	A	A	G	G
LpMDHh24 :	N	G	A	A	G	G
LpMDHh25 :	C	G	A	A	G	G
LpMDHh26 :	C	G	A	A	G	G
LpMDHh27 :	C	G	A	A	G	G
LpMDHh28 :	C	G	A	A	G	G
LpMDHh29 :	C	G	A	A	G	G
LpMDHh30 :	C	G	A	A	G	G
LpMDHh31 :	C	G	A	A	G	G
LpMDHh32 :	C	G	A	A	G	G
LpMDHh33 :	C	N	A	A	G	G
LpMDHh34 :	C	N	A	A	G	G
LpMDHh35 :	C	G	A	A	G	G
LpMDHh36 :	C	G	A	A	G	G
LpMDHh37 :	C	G	A	A	G	G
LpMDHh38 :	C	G	A	A	G	G
LpMDHh39 :	C	G	A	A	G	G
LpMDHh40 :	C	G	A	A	G	G
LpMDHh41 :	C	G	A	A	G	G
LpMDHh42 :	C	G	A	A	G	G
LpMDHh43 :	C	G	A	A	G	G
LpMDHh44 :	C	G	A	A	G	G
LpMDHh45 :	C	G	A	A	G	G
LpMDHh46 :	C	G	A	A	G	G
LpMDHh47 :	C	G	A	A	G	G
LpMDHh48 :	C	G	A	A	G	G
LpMDHh49 :	C	G	A	A	G	G
LpMDHh50 :	C	G	A	A	G	G
LpMDHh51 :	C	G	A	A	G	G
LpMDHh52 :	-	-	-	-	-	-
LpMDHh53 :	-	-	-	-	-	-
LpMDHh54 :	-	-	-	-	-	-
LpMDHh55 :	-	-	-	-	-	-
LpMDHh56 :	-	-	-	-	-	-
LpMDHh57 :	-	-	-	-	-	-
LpMDHh58 :	-	-	-	-	-	-
LpMDHh59 :	-	-	-	-	-	-
LpMDHh60 :	-	-	-	-	-	-
LpMDHh61 :	-	-	-	-	-	-
LpMDHh62 :	-	-	-	-	-	-
LpMDHh63 :	-	-	-	-	-	-
LpMDHh64 :	-	-	-	-	-	-

FIGURE 30 (cont.)

[illegible]

FIGURE 30 (cont.)

[illegible]

FIGURE 30 (cont.)

[illegible]

FIGURE 30 (cont.)

[illegible]

FIGURE 30 (cont.)

[illegible]

FIGURE 30 (cont.)

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	500	*	520	*	540	*	5	
LpMDHh1	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 556
LpMDHh2	: -----							: -
LpMDHh3	: -----							: -
LpMDHh4	: -----							: -
LpMDHh5	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 516
LpMDHh6	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 514
LpMDHh7	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh8	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 515
LpMDHh9	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 515
LpMDHh10	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 513
LpMDHh11	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 514
LpMDHh12	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh13	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 511
LpMDHh14	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh15	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh16	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh17	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 511
LpMDHh18	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh19	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh20	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 511
LpMDHh21	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh22	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 512
LpMDHh23	: -----							: -
LpMDHh24	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 511
LpMDHh25	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 511
LpMDHh26	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 510
LpMDHh27	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 511
LpMDHh28	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 509
LpMDHh29	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 509
LpMDHh30	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 510
LpMDHh31	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 508
LpMDHh32	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 510
LpMDHh34	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 509
LpMDHh35	: AGGTTCTGGTTGTTGCCAATCCA-----							: 470
LpMDHh36	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 508
LpMDHh37	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 509
LpMDHh38	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 507
LpMDHh39	: -----							: -
LpMDHh40	: -----							: -
LpMDHh41	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 507
LpMDHh42	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 506
LpMDHh43	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 507
LpMDHh44	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 506
LpMDHh45	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 505
LpMDHh46	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 506
LpMDHh47	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 503
LpMDHh48	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 499
LpMDHh49	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 502
LpMDHh50	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 480
LpMDHh51	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 463
LpMDHh52	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 429
LpMDHh53	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 351
LpMDHh54	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 180
LpMDHh55	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 102
LpMDHh56	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 82
LpMDHh57	: AGGTTCTGGTTGTTGCCAATCCAGCAAACACCAATGCTCTTATCTTAAAGGAGTTTGCTCCA							: 78
LpMDHh58	: -----							: -
LpMDHh59	: -----							: -
LpMDHh60	: -----							: -
LpMDHh61	: -----							: -
LpMDHh62	: -----							: -
LpMDHh63	: -----							: -
LpMDHh64	: -----							: -

FIGURE 30 (cont.)

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	60	*	580	*	600	*	620	
LpMDHh1	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	618				
LpMDHh2	:	-----	:	-				
LpMDHh3	:	-----	:	-				
LpMDHh4	:	-----	:	-				
LpMDHh5	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	578				
LpMDHh6	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	576				
LpMDHh7	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh8	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	577				
LpMDHh9	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	577				
LpMDHh10	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	575				
LpMDHh11	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	576				
LpMDHh12	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh13	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	563				
LpMDHh14	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh15	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh16	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh17	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	573				
LpMDHh18	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh19	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh20	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	573				
LpMDHh21	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh22	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	574				
LpMDHh23	:	-----	:	-				
LpMDHh24	:	TCTATTCTGAGAA-----	:	525				
LpMDHh25	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	573				
LpMDHh26	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	572				
LpMDHh27	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	573				
LpMDHh28	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	571				
LpMDHh29	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	571				
LpMDHh30	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	572				
LpMDHh31	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	570				
LpMDHh32	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	572				
LpMDHh34	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	571				
LpMDHh35	:	-----	:	-				
LpMDHh36	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	570				
LpMDHh37	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	571				
LpMDHh38	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	569				
LpMDHh39	:	-----	:	-				
LpMDHh40	:	-----	:	-				
LpMDHh41	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	569				
LpMDHh42	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	568				
LpMDHh43	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	569				
LpMDHh44	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	568				
LpMDHh45	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	567				
LpMDHh46	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	568				
LpMDHh47	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	565				
LpMDHh48	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	561				
LpMDHh49	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	564				
LpMDHh50	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	542				
LpMDHh51	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	525				
LpMDHh52	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	491				
LpMDHh53	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	413				
LpMDHh54	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	242				
LpMDHh55	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	164				
LpMDHh56	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	144				
LpMDHh57	:	TCTATTCTGAGAAGAACATCAGTTGTTTGACCCGCTAGACCATAACAGGGCACTTGGTCA	:	140				
LpMDHh58	:	-----	:	-				
LpMDHh59	:	-----	:	-				
LpMDHh60	:	-----	:	-				
LpMDHh61	:	-----	:	-				
LpMDHh62	:	-----	:	-				
LpMDHh63	:	-----	:	-				
LpMDHh64	:	-----	:	-				

FIGURE 30 (cont.)

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		*	640	*	660	*	680	
LpMDHh1	:	GATCTCTGAGAGACTTGATGTCCTCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 680
LpMDHh2	:	-----						: -
LpMDHh3	:	-----						: -
LpMDHh4	:	-----						: -
LpMDHh5	:	GATCTCTGAGAGACTTGATGTCCTCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 640
LpMDHh6	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 638
LpMDHh7	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh8	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 639
LpMDHh9	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 639
LpMDHh10	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 637
LpMDHh11	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 638
LpMDHh12	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh13	:	-----						: -
LpMDHh14	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh15	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh16	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh17	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 635
LpMDHh18	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh19	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh20	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 635
LpMDHh21	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh22	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 636
LpMDHh23	:	-----						: -
LpMDHh24	:	-----						: -
LpMDHh25	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 635
LpMDHh26	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 634
LpMDHh27	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 635
LpMDHh28	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 633
LpMDHh29	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 633
LpMDHh30	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 634
LpMDHh31	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 595
LpMDHh32	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 634
LpMDHh34	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 633
LpMDHh35	:	-----						: -
LpMDHh36	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 599
LpMDHh37	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 606
LpMDHh38	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 631
LpMDHh39	:	-----						: -
LpMDHh40	:	-----						: -
LpMDHh41	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 605
LpMDHh42	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 630
LpMDHh43	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 631
LpMDHh44	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 630
LpMDHh45	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 629
LpMDHh46	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 630
LpMDHh47	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 627
LpMDHh48	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 623
LpMDHh49	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 626
LpMDHh50	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 604
LpMDHh51	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 587
LpMDHh52	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 553
LpMDHh53	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 475
LpMDHh54	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 304
LpMDHh55	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 226
LpMDHh56	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 206
LpMDHh57	:	GATCTCTGAGAGACTTGATGTCCAAGTTAGTGATGTGAAGAAATGTTATCATCTGGGGCAATC						: 202
LpMDHh58	:	-----GCAATC						: 6
LpMDHh59	:	-----						: -
LpMDHh60	:	-----						: -
LpMDHh61	:	-----						: -
LpMDHh62	:	-----						: -
LpMDHh63	:	-----						: -
LpMDHh64	:	-----						: -

FIGURE 30 (cont.)

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	*	700	*	720	*	740	
LpMDHh1	:	ACTCTTNCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	742			
LpMDHh2	:	-----	:	-			
LpMDHh3	:	-----	:	-			
LpMDHh4	:	-----	:	-			
LpMDHh5	:	ACTCTTCCAG	:	650			
LpMDHh6	:	ACTCTTCCAGTCAGTACCCTGA	:	660			
LpMDHh7	:	ACCTTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	693			
LpMDHh8	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	701			
LpMDHh9	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	701			
LpMDHh10	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	684			
LpMDHh11	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	700			
LpMDHh12	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTNCAGTGGCGAGAAG	:	698			
LpMDHh13	:	-----	:	-			
LpMDHh14	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGN	:	692			
LpMDHh15	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	698			
LpMDHh16	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	698			
LpMDHh17	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	697			
LpMDHh18	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	698			
LpMDHh19	:	ACTCTTNCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	698			
LpMDHh20	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	697			
LpMDHh21	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	698			
LpMDHh22	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTNCAGTGGCGAGAAG	:	698			
LpMDHh23	:	-----	:	-			
LpMDHh24	:	-----	:	-			
LpMDHh25	:	ACTCTTNCAGTNCATACCCTGATGTGAACCACGCCACCGNGAAGACACTTNCAGTGGCAGAGAAG	:	696			
LpMDHh26	:	ACTCTTCCAGTC	:	646			
LpMDHh27	:	ACTCTTNCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTNCAGTGGCGAGAAG	:	697			
LpMDHh28	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	695			
LpMDHh29	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	695			
LpMDHh30	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	696			
LpMDHh31	:	-----	:	-			
LpMDHh32	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGNGAAGACTTCCAGTGGCAGAGANN	:	696			
LpMDHh34	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	695			
LpMDHh35	:	-----	:	-			
LpMDHh36	:	-----	:	-			
LpMDHh37	:	-----	:	-			
LpMDHh38	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTNCAGTGG	:	686			
LpMDHh39	:	-----	:	-			
LpMDHh40	:	-----	:	-			
LpMDHh41	:	-----	:	-			
LpMDHh42	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGG	:	685			
LpMDHh43	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	693			
LpMDHh44	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	692			
LpMDHh45	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTNCAGTGGCGAGAA	:	690			
LpMDHh46	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTNCAGTGGCGAGAAG	:	692			
LpMDHh47	:	ACTTNTCCAGTCAGTNCCTGATGTGAACCACGCCACCGTGAAGACTTNCAGTGGCGAGAAG	:	679			
LpMDHh48	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGN	:	676			
LpMDHh49	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	688			
LpMDHh50	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	666			
LpMDHh51	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	649			
LpMDHh52	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	615			
LpMDHh53	:	ACTCTTNCAGTNCATNCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	513			
LpMDHh54	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	366			
LpMDHh55	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	288			
LpMDHh56	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	268			
LpMDHh57	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	264			
LpMDHh58	:	ACTCTTCCAGTCAGTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	67			
LpMDHh59	:	-----GTACCCTGATGTGAACCACGCCACCGTGAAGACTTCCAGTGGCGAGAAG	:	49			
LpMDHh60	:	-----TTCAGTGGCAGAGAG	:	14			
LpMDHh61	:	-----GCCGAGAAG	:	8			
LpMDHh62	:	-----	:	-			
LpMDHh63	:	-----	:	-			
LpMDHh64	:	-----	:	-			

FIGURE 30 (cont.)

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		*	760	*	780	*	800	
LpMDHh1	:	CCTGTTTCGCGAACTTGTAAAGACGATG						770
LpMDHh2	:	-----						-
LpMDHh3	:	-----						-
LpMDHh4	:	-----						-
LpMDHh5	:	-----						-
LpMDHh6	:	-----						-
LpMDHh7	:	-----						-
LpMDHh8	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						763
LpMDHh9	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						763
LpMDHh10	:	-----						-
LpMDHh11	:	CCTGTTTC-----						707
LpMDHh12	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						760
LpMDHh13	:	-----						-
LpMDHh14	:	-----						-
LpMDHh15	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						760
LpMDHh16	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						760
LpMDHh17	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						759
LpMDHh18	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						760
LpMDHh19	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						760
LpMDHh20	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						759
LpMDHh21	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						760
LpMDHh22	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						760
LpMDHh23	:	-----						-
LpMDHh24	:	-----						-
LpMDHh25	:	-----						-
LpMDHh26	:	-----						-
LpMDHh27	:	CCTGTTTCGCGAACT-----						711
LpMDHh28	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						757
LpMDHh29	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						757
LpMDHh30	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						758
LpMDHh31	:	-----						-
LpMDHh32	:	-----						-
LpMDHh34	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						757
LpMDHh35	:	-----						-
LpMDHh36	:	-----						-
LpMDHh37	:	-----						-
LpMDHh38	:	-----						-
LpMDHh39	:	-----						-
LpMDHh40	:	-----						-
LpMDHh41	:	-----						-
LpMDHh42	:	-----						-
LpMDHh43	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						755
LpMDHh44	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						754
LpMDHh45	:	-----						-
LpMDHh46	:	CCTGTTTC-----						700
LpMDHh47	:	-----						-
LpMDHh48	:	-----						-
LpMDHh49	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						750
LpMDHh50	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						728
LpMDHh51	:	CCTGTTTCGCGAACTTGTAAAGACGAT-----						676
LpMDHh52	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						677
LpMDHh53	:	-----						-
LpMDHh54	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						428
LpMDHh55	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						350
LpMDHh56	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						330
LpMDHh57	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						326
LpMDHh58	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						129
LpMDHh59	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						111
LpMDHh60	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						75
LpMDHh61	:	CCTGTTTCGCGAACTTGTAAAGACGATGAATGGCTAAATGCAGGGTTCATTGCCACTGTCCA						70
LpMDHh62	:	-----						-
LpMDHh63	:	-----						-
LpMDHh64	:	-----						-

FIGURE 30 (cont.)

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	*	820	*	840	*	860	
LpMDHh1	:	-----	:	-----	:	-----	-
LpMDHh2	:	-----	:	-----	:	-----	-
LpMDHh3	:	-----	:	-----	:	-----	-
LpMDHh4	:	-----	:	-----	:	-----	-
LpMDHh5	:	-----	:	-----	:	-----	-
LpMDHh6	:	-----	:	-----	:	-----	-
LpMDHh7	:	-----	:	-----	:	-----	-
LpMDHh8	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAG	:	-----	:	-----	793
LpMDHh9	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAG	:	-----	:	-----	797
LpMDHh10	:	-----	:	-----	:	-----	-
LpMDHh11	:	-----	:	-----	:	-----	-
LpMDHh12	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTTCA	:	-----	:	-----	801
LpMDHh13	:	-----	:	-----	:	-----	-
LpMDHh14	:	-----	:	-----	:	-----	-
LpMDHh15	:	GCAG	:	-----	:	-----	764
LpMDHh16	:	GCAGCGTGG	:	-----	:	-----	769
LpMDHh17	:	GCAGCGTGGTG	:	-----	:	-----	770
LpMDHh18	:	GCAGCGTGGTGCTGCAATC	:	-----	:	-----	779
LpMDHh19	:	GCAGCGTGGTGCTGCAATCATCAAAGCG	:	-----	:	-----	788
LpMDHh20	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGC	:	-----	:	-----	794
LpMDHh21	:	GCAGCGTGGTGCTGCTGATCATCAAAGCGAGGAAGCTT	:	-----	:	-----	797
LpMDHh22	:	GCAGCGTGGTGCTGCTGCTCATCAAAGCGAGGAAGCTCTTCACT	:	-----	:	-----	802
LpMDHh23	:	-----	:	-----	:	-----	-
LpMDHh24	:	-----	:	-----	:	-----	-
LpMDHh25	:	-----	:	-----	:	-----	-
LpMDHh26	:	-----	:	-----	:	-----	-
LpMDHh27	:	-----	:	-----	:	-----	-
LpMDHh28	:	GCAGCGTGGTG	:	-----	:	-----	768
LpMDHh29	:	GCAGCGTGGTGCTGCAATCATCAAAG	:	-----	:	-----	783
LpMDHh30	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTTCACTG	:	-----	:	-----	803
LpMDHh31	:	-----	:	-----	:	-----	-
LpMDHh32	:	-----	:	-----	:	-----	-
LpMDHh34	:	GCAGCGTGGTGCTGCAATCATA	:	-----	:	-----	779
LpMDHh35	:	-----	:	-----	:	-----	-
LpMDHh36	:	-----	:	-----	:	-----	-
LpMDHh37	:	-----	:	-----	:	-----	-
LpMDHh38	:	-----	:	-----	:	-----	-
LpMDHh39	:	-----	:	-----	:	-----	-
LpMDHh40	:	-----	:	-----	:	-----	-
LpMDHh41	:	-----	:	-----	:	-----	-
LpMDHh42	:	-----	:	-----	:	-----	-
LpMDHh43	:	GCAGCGTG	:	-----	:	-----	763
LpMDHh44	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCT	:	-----	:	-----	790
LpMDHh45	:	-----	:	-----	:	-----	-
LpMDHh46	:	-----	:	-----	:	-----	-
LpMDHh47	:	-----	:	-----	:	-----	-
LpMDHh48	:	-----	:	-----	:	-----	-
LpMDHh49	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCT	:	-----	:	-----	786
LpMDHh50	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTG	:	-----	:	-----	772
LpMDHh51	:	-----	:	-----	:	-----	-
LpMDHh52	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	739
LpMDHh53	:	-----	:	-----	:	-----	-
LpMDHh54	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	490
LpMDHh55	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	412
LpMDHh56	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	392
LpMDHh57	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	388
LpMDHh58	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	191
LpMDHh59	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	173
LpMDHh60	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	137
LpMDHh61	:	GCAGCGTGGTGCTGCAATCATCAAAGCGAGGAAGCTCTCCAGTGCTCTCTCTGCTGCCAGCT	:	-----	:	-----	132
LpMDHh62	:	-----	:	-----	:	-----	-
LpMDHh63	:	-----	:	-----	:	-----	-
LpMDHh64	:	-----	:	-----	:	-----	-

FIGURE 30 (cont.)

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	*	880	*	900	*	920	*	
LpMDHh1	:	-----		-----		-----		-
LpMDHh2	:	-----		-----		-----		-
LpMDHh3	:	-----		-----		-----		-
LpMDHh4	:	-----		-----		-----		-
LpMDHh5	:	-----		-----		-----		-
LpMDHh6	:	-----		-----		-----		-
LpMDHh7	:	-----		-----		-----		-
LpMDHh8	:	-----		-----		-----		-
LpMDHh9	:	-----		-----		-----		-
LpMDHh10	:	-----		-----		-----		-
LpMDHh11	:	-----		-----		-----		-
LpMDHh12	:	-----		-----		-----		-
LpMDHh13	:	-----		-----		-----		-
LpMDHh14	:	-----		-----		-----		-
LpMDHh15	:	-----		-----		-----		-
LpMDHh16	:	-----		-----		-----		-
LpMDHh17	:	-----		-----		-----		-
LpMDHh18	:	-----		-----		-----		-
LpMDHh19	:	-----		-----		-----		-
LpMDHh20	:	-----		-----		-----		-
LpMDHh21	:	-----		-----		-----		-
LpMDHh22	:	-----		-----		-----		-
LpMDHh23	:	-----		-----		-----		-
LpMDHh24	:	-----		-----		-----		-
LpMDHh25	:	-----		-----		-----		-
LpMDHh26	:	-----		-----		-----		-
LpMDHh27	:	-----		-----		-----		-
LpMDHh28	:	-----		-----		-----		-
LpMDHh29	:	-----		-----		-----		-
LpMDHh30	:	-----		-----		-----		-
LpMDHh31	:	-----		-----		-----		-
LpMDHh32	:	-----		-----		-----		-
LpMDHh34	:	-----		-----		-----		-
LpMDHh35	:	-----		-----		-----		-
LpMDHh36	:	-----		-----		-----		-
LpMDHh37	:	-----		-----		-----		-
LpMDHh38	:	-----		-----		-----		-
LpMDHh39	:	-----		-----		-----		-
LpMDHh40	:	-----		-----		-----		-
LpMDHh41	:	-----		-----		-----		-
LpMDHh42	:	-----		-----		-----		-
LpMDHh43	:	-----		-----		-----		-
LpMDHh44	:	-----		-----		-----		-
LpMDHh45	:	-----		-----		-----		-
LpMDHh46	:	-----		-----		-----		-
LpMDHh47	:	-----		-----		-----		-
LpMDHh48	:	-----		-----		-----		-
LpMDHh49	:	-----		-----		-----		-
LpMDHh50	:	-----		-----		-----		-
LpMDHh51	:	-----		-----		-----		-
LpMDHh52	:	CTGCTTGTGACCACATCCGTGATT		-----		-----		763
LpMDHh53	:	-----		-----		-----		-
LpMDHh54	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		552
LpMDHh55	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		474
LpMDHh56	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		454
LpMDHh57	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		450
LpMDHh58	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		253
LpMDHh59	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		235
LpMDHh60	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		199
LpMDHh61	:	CTGCTTGTGACCACATCCGTGATTGGGTTCTCGGAACCCCTGAGGGAACATTGTTTCCATG		-----		-----		194
LpMDHh62	:	-----		-----		-----		-
LpMDHh63	:	-----		-----		-----		-
LpMDHh64	:	-----		-----		-----		-

FIGURE 30 (cont.)

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	940	*	960	*	980	*	
LpMDHh1	:	-----	:	-----	:	-----	-
LpMDHh2	:	-----	:	-----	:	-----	-
LpMDHh3	:	-----	:	-----	:	-----	-
LpMDHh4	:	-----	:	-----	:	-----	-
LpMDHh5	:	-----	:	-----	:	-----	-
LpMDHh6	:	-----	:	-----	:	-----	-
LpMDHh7	:	-----	:	-----	:	-----	-
LpMDHh8	:	-----	:	-----	:	-----	-
LpMDHh9	:	-----	:	-----	:	-----	-
LpMDHh10	:	-----	:	-----	:	-----	-
LpMDHh11	:	-----	:	-----	:	-----	-
LpMDHh12	:	-----	:	-----	:	-----	-
LpMDHh13	:	-----	:	-----	:	-----	-
LpMDHh14	:	-----	:	-----	:	-----	-
LpMDHh15	:	-----	:	-----	:	-----	-
LpMDHh16	:	-----	:	-----	:	-----	-
LpMDHh17	:	-----	:	-----	:	-----	-
LpMDHh18	:	-----	:	-----	:	-----	-
LpMDHh19	:	-----	:	-----	:	-----	-
LpMDHh20	:	-----	:	-----	:	-----	-
LpMDHh21	:	-----	:	-----	:	-----	-
LpMDHh22	:	-----	:	-----	:	-----	-
LpMDHh23	:	-----	:	-----	:	-----	-
LpMDHh24	:	-----	:	-----	:	-----	-
LpMDHh25	:	-----	:	-----	:	-----	-
LpMDHh26	:	-----	:	-----	:	-----	-
LpMDHh27	:	-----	:	-----	:	-----	-
LpMDHh28	:	-----	:	-----	:	-----	-
LpMDHh29	:	-----	:	-----	:	-----	-
LpMDHh30	:	-----	:	-----	:	-----	-
LpMDHh31	:	-----	:	-----	:	-----	-
LpMDHh32	:	-----	:	-----	:	-----	-
LpMDHh34	:	-----	:	-----	:	-----	-
LpMDHh35	:	-----	:	-----	:	-----	-
LpMDHh36	:	-----	:	-----	:	-----	-
LpMDHh37	:	-----	:	-----	:	-----	-
LpMDHh38	:	-----	:	-----	:	-----	-
LpMDHh39	:	-----	:	-----	:	-----	-
LpMDHh40	:	-----	:	-----	:	-----	-
LpMDHh41	:	-----	:	-----	:	-----	-
LpMDHh42	:	-----	:	-----	:	-----	-
LpMDHh43	:	-----	:	-----	:	-----	-
LpMDHh44	:	-----	:	-----	:	-----	-
LpMDHh45	:	-----	:	-----	:	-----	-
LpMDHh46	:	-----	:	-----	:	-----	-
LpMDHh47	:	-----	:	-----	:	-----	-
LpMDHh48	:	-----	:	-----	:	-----	-
LpMDHh49	:	-----	:	-----	:	-----	-
LpMDHh50	:	-----	:	-----	:	-----	-
LpMDHh51	:	-----	:	-----	:	-----	-
LpMDHh52	:	-----	:	-----	:	-----	-
LpMDHh53	:	-----	:	-----	:	-----	-
LpMDHh54	:	GGTGTGTATTCTGATGGNT-ATACNCGGTGCCTGCTGGGCTTATCTACTCCTT	:	NCCAGNAAC	:		613
LpMDHh55	:	GGTGTGTATTCTGATGGTTCATACGGGTGTGCCTGCTGGGCTTATCTACTCCTT	:	CCCCAGTAAC	:		536
LpMDHh56	:	GGTGTGTATTCTGATGGTTCATACGGGTGTGCCTGCTGGGCTTATCTACTCCTT	:	CCCCAGTAAC	:		516
LpMDHh57	:	GGTGTGTATTCTGATGGTTCATACGGGTGTGCCTGCTGGGCTTATCTACTCCTT	:	CCCCAGTAAC	:		512
LpMDHh58	:	GGTGTGTATTCTGATGGTTCATACGGGTGTGCCTGCTGGGCTTATCTACTCCTT	:	CCCCAGTAAC	:		315
LpMDHh59	:	GGTGTGTATTCTGATGGTTCATACGGGTGTGCCTGCTGGGCTTATCTACTCCTT	:	CCCCAGTAAC	:		297
LpMDHh60	:	GGTGTGTATTCTGATGGTTCATACGGGTGTGCCTGCTGGGCTTATCTACTCCTT	:	CCCCAGTAAC	:		261
LpMDHh61	:	GGTGTGTATTCTGATGGTTCATACGGGTGTGCCTGCTGGGCTTATCTACTCCTT	:	CCCCAGTAAC	:		256
LpMDHh62	:	-----	:	-----	:	-----	-
LpMDHh63	:	-----	:	-----	:	-----	-
LpMDHh64	:	-----	:	-----	:	-----	-

FIGURE 30 (cont.)

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	1000	*	1020	*	1040	*	
LpMDHh1	:	-----	:	-----	:	-----	-
LpMDHh2	:	-----	:	-----	:	-----	-
LpMDHh3	:	-----	:	-----	:	-----	-
LpMDHh4	:	-----	:	-----	:	-----	-
LpMDHh5	:	-----	:	-----	:	-----	-
LpMDHh6	:	-----	:	-----	:	-----	-
LpMDHh7	:	-----	:	-----	:	-----	-
LpMDHh8	:	-----	:	-----	:	-----	-
LpMDHh9	:	-----	:	-----	:	-----	-
LpMDHh10	:	-----	:	-----	:	-----	-
LpMDHh11	:	-----	:	-----	:	-----	-
LpMDHh12	:	-----	:	-----	:	-----	-
LpMDHh13	:	-----	:	-----	:	-----	-
LpMDHh14	:	-----	:	-----	:	-----	-
LpMDHh15	:	-----	:	-----	:	-----	-
LpMDHh16	:	-----	:	-----	:	-----	-
LpMDHh17	:	-----	:	-----	:	-----	-
LpMDHh18	:	-----	:	-----	:	-----	-
LpMDHh19	:	-----	:	-----	:	-----	-
LpMDHh20	:	-----	:	-----	:	-----	-
LpMDHh21	:	-----	:	-----	:	-----	-
LpMDHh22	:	-----	:	-----	:	-----	-
LpMDHh23	:	-----	:	-----	:	-----	-
LpMDHh24	:	-----	:	-----	:	-----	-
LpMDHh25	:	-----	:	-----	:	-----	-
LpMDHh26	:	-----	:	-----	:	-----	-
LpMDHh27	:	-----	:	-----	:	-----	-
LpMDHh28	:	-----	:	-----	:	-----	-
LpMDHh29	:	-----	:	-----	:	-----	-
LpMDHh30	:	-----	:	-----	:	-----	-
LpMDHh31	:	-----	:	-----	:	-----	-
LpMDHh32	:	-----	:	-----	:	-----	-
LpMDHh34	:	-----	:	-----	:	-----	-
LpMDHh35	:	-----	:	-----	:	-----	-
LpMDHh36	:	-----	:	-----	:	-----	-
LpMDHh37	:	-----	:	-----	:	-----	-
LpMDHh38	:	-----	:	-----	:	-----	-
LpMDHh39	:	-----	:	-----	:	-----	-
LpMDHh40	:	-----	:	-----	:	-----	-
LpMDHh41	:	-----	:	-----	:	-----	-
LpMDHh42	:	-----	:	-----	:	-----	-
LpMDHh43	:	-----	:	-----	:	-----	-
LpMDHh44	:	-----	:	-----	:	-----	-
LpMDHh45	:	-----	:	-----	:	-----	-
LpMDHh46	:	-----	:	-----	:	-----	-
LpMDHh47	:	-----	:	-----	:	-----	-
LpMDHh48	:	-----	:	-----	:	-----	-
LpMDHh49	:	-----	:	-----	:	-----	-
LpMDHh50	:	-----	:	-----	:	-----	-
LpMDHh51	:	-----	:	-----	:	-----	-
LpMDHh52	:	-----	:	-----	:	-----	-
LpMDHh53	:	-----	:	-----	:	-----	-
LpMDHh54	:	TTGCTG	NGGGGGGGAATGGACAATTGNTCAAAGGGCTNCCNATCNACNAGTT	:	-----	:	664
LpMDHh55	:	TTGCTGCGGTGGTGAATGGACAATTGTTCAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGA	:	-----	:	598	
LpMDHh56	:	TTGCTGCGGTGGTGAATGGACAATTGTTCAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGA	:	-----	:	578	
LpMDHh57	:	TTGCTGCGGTGGTGAATGGACAATTGTTCAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGA	:	-----	:	574	
LpMDHh58	:	TTGCTGCGGTGGTGAATGGACAATTGTTCAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGA	:	-----	:	377	
LpMDHh59	:	TTGCTGCGGTGGTGAATGGACAATTGTTCAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGA	:	-----	:	359	
LpMDHh60	:	TTGCTGCGGTGGTGAATGGACAATTGTTCAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGA	:	-----	:	323	
LpMDHh61	:	TTGCTGCGGTGGTGAATGGACAATTGTTCAAGGGCTCCCGATCGACGAGTTCTCAAGAAAGA	:	-----	:	318	
LpMDHh62	:	-----	CCTTCCCGAAACCGAGTTCTC	:	TTTTAG	:	28
LpMDHh63	:	-----	-----	:	-----	:	-
LpMDHh64	:	-----	-----	:	-----	:	-

FIGURE 30 (cont.)

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	1060	*	1080	*	1100	*	
LpMDHh1	:	-----	-----	-----	-----	-----	:
LpMDHh2	:	-----	-----	-----	-----	-----	:
LpMDHh3	:	-----	-----	-----	-----	-----	:
LpMDHh4	:	-----	-----	-----	-----	-----	:
LpMDHh5	:	-----	-----	-----	-----	-----	:
LpMDHh6	:	-----	-----	-----	-----	-----	:
LpMDHh7	:	-----	-----	-----	-----	-----	:
LpMDHh8	:	-----	-----	-----	-----	-----	:
LpMDHh9	:	-----	-----	-----	-----	-----	:
LpMDHh10	:	-----	-----	-----	-----	-----	:
LpMDHh11	:	-----	-----	-----	-----	-----	:
LpMDHh12	:	-----	-----	-----	-----	-----	:
LpMDHh13	:	-----	-----	-----	-----	-----	:
LpMDHh14	:	-----	-----	-----	-----	-----	:
LpMDHh15	:	-----	-----	-----	-----	-----	:
LpMDHh16	:	-----	-----	-----	-----	-----	:
LpMDHh17	:	-----	-----	-----	-----	-----	:
LpMDHh18	:	-----	-----	-----	-----	-----	:
LpMDHh19	:	-----	-----	-----	-----	-----	:
LpMDHh20	:	-----	-----	-----	-----	-----	:
LpMDHh21	:	-----	-----	-----	-----	-----	:
LpMDHh22	:	-----	-----	-----	-----	-----	:
LpMDHh23	:	-----	-----	-----	-----	-----	:
LpMDHh24	:	-----	-----	-----	-----	-----	:
LpMDHh25	:	-----	-----	-----	-----	-----	:
LpMDHh26	:	-----	-----	-----	-----	-----	:
LpMDHh27	:	-----	-----	-----	-----	-----	:
LpMDHh28	:	-----	-----	-----	-----	-----	:
LpMDHh29	:	-----	-----	-----	-----	-----	:
LpMDHh30	:	-----	-----	-----	-----	-----	:
LpMDHh31	:	-----	-----	-----	-----	-----	:
LpMDHh32	:	-----	-----	-----	-----	-----	:
LpMDHh34	:	-----	-----	-----	-----	-----	:
LpMDHh35	:	-----	-----	-----	-----	-----	:
LpMDHh36	:	-----	-----	-----	-----	-----	:
LpMDHh37	:	-----	-----	-----	-----	-----	:
LpMDHh38	:	-----	-----	-----	-----	-----	:
LpMDHh39	:	-----	-----	-----	-----	-----	:
LpMDHh40	:	-----	-----	-----	-----	-----	:
LpMDHh41	:	-----	-----	-----	-----	-----	:
LpMDHh42	:	-----	-----	-----	-----	-----	:
LpMDHh43	:	-----	-----	-----	-----	-----	:
LpMDHh44	:	-----	-----	-----	-----	-----	:
LpMDHh45	:	-----	-----	-----	-----	-----	:
LpMDHh46	:	-----	-----	-----	-----	-----	:
LpMDHh47	:	-----	-----	-----	-----	-----	:
LpMDHh48	:	-----	-----	-----	-----	-----	:
LpMDHh49	:	-----	-----	-----	-----	-----	:
LpMDHh50	:	-----	-----	-----	-----	-----	:
LpMDHh51	:	-----	-----	-----	-----	-----	:
LpMDHh52	:	-----	-----	-----	-----	-----	:
LpMDHh53	:	-----	-----	-----	-----	-----	:
LpMDHh54	:	-----	-----	-----	-----	-----	:
LpMDHh55	:	AGATGGATGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	660			
LpMDHh56	:	AGATGGATGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	640			
LpMDHh57	:	AGATGGATGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	636			
LpMDHh58	:	AGATGGATGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	439			
LpMDHh59	:	AGATGGATGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	421			
LpMDHh60	:	AGATGGATGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	385			
LpMDHh61	:	AGATGGATGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	380			
LpMDHh62	:	AGA-GGACGCCACAGCCCAGGAGCTCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	89			
LpMDHh63	:	-----CCTCGGAGGAGAAGGCTCTCGCCTACTCGTGCCTCGAG	:	38			
LpMDHh64	:	-----	:	-			

FIGURE 30 (cont.)

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	1120	*	1140	*	1160	*	11	
LpMDHh1	:	-----	:	-----	:	-----	:	-
LpMDHh2	:	-----	:	-----	:	-----	:	-
LpMDHh3	:	-----	:	-----	:	-----	:	-
LpMDHh4	:	-----	:	-----	:	-----	:	-
LpMDHh5	:	-----	:	-----	:	-----	:	-
LpMDHh6	:	-----	:	-----	:	-----	:	-
LpMDHh7	:	-----	:	-----	:	-----	:	-
LpMDHh8	:	-----	:	-----	:	-----	:	-
LpMDHh9	:	-----	:	-----	:	-----	:	-
LpMDHh10	:	-----	:	-----	:	-----	:	-
LpMDHh11	:	-----	:	-----	:	-----	:	-
LpMDHh12	:	-----	:	-----	:	-----	:	-
LpMDHh13	:	-----	:	-----	:	-----	:	-
LpMDHh14	:	-----	:	-----	:	-----	:	-
LpMDHh15	:	-----	:	-----	:	-----	:	-
LpMDHh16	:	-----	:	-----	:	-----	:	-
LpMDHh17	:	-----	:	-----	:	-----	:	-
LpMDHh18	:	-----	:	-----	:	-----	:	-
LpMDHh19	:	-----	:	-----	:	-----	:	-
LpMDHh20	:	-----	:	-----	:	-----	:	-
LpMDHh21	:	-----	:	-----	:	-----	:	-
LpMDHh22	:	-----	:	-----	:	-----	:	-
LpMDHh23	:	-----	:	-----	:	-----	:	-
LpMDHh24	:	-----	:	-----	:	-----	:	-
LpMDHh25	:	-----	:	-----	:	-----	:	-
LpMDHh26	:	-----	:	-----	:	-----	:	-
LpMDHh27	:	-----	:	-----	:	-----	:	-
LpMDHh28	:	-----	:	-----	:	-----	:	-
LpMDHh29	:	-----	:	-----	:	-----	:	-
LpMDHh30	:	-----	:	-----	:	-----	:	-
LpMDHh31	:	-----	:	-----	:	-----	:	-
LpMDHh32	:	-----	:	-----	:	-----	:	-
LpMDHh34	:	-----	:	-----	:	-----	:	-
LpMDHh35	:	-----	:	-----	:	-----	:	-
LpMDHh36	:	-----	:	-----	:	-----	:	-
LpMDHh37	:	-----	:	-----	:	-----	:	-
LpMDHh38	:	-----	:	-----	:	-----	:	-
LpMDHh39	:	-----	:	-----	:	-----	:	-
LpMDHh40	:	-----	:	-----	:	-----	:	-
LpMDHh41	:	-----	:	-----	:	-----	:	-
LpMDHh42	:	-----	:	-----	:	-----	:	-
LpMDHh43	:	-----	:	-----	:	-----	:	-
LpMDHh44	:	-----	:	-----	:	-----	:	-
LpMDHh45	:	-----	:	-----	:	-----	:	-
LpMDHh46	:	-----	:	-----	:	-----	:	-
LpMDHh47	:	-----	:	-----	:	-----	:	-
LpMDHh48	:	-----	:	-----	:	-----	:	-
LpMDHh49	:	-----	:	-----	:	-----	:	-
LpMDHh50	:	-----	:	-----	:	-----	:	-
LpMDHh51	:	-----	:	-----	:	-----	:	-
LpMDHh52	:	-----	:	-----	:	-----	:	-
LpMDHh53	:	-----	:	-----	:	-----	:	-
LpMDHh54	:	-----	:	-----	:	-----	:	-
LpMDHh55	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTN	:			722
LpMDHh56	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTN	:			701
LpMDHh57	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTN	:			667
LpMDHh58	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTC	:			501
LpMDHh59	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTC	:			483
LpMDHh60	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTC	:			447
LpMDHh61	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTC	:			442
LpMDHh62	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTC	:			151
LpMDHh63	:	TA	ACTGC	ATACCAGGGAGCAGCTGCCGCTCTGATGTTTGAATAAAAGGAACATTTTGGCTC	:			100
LpMDHh64	:	-----	:	-----	:	-----	:	-

FIGURE 30 (cont.)

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	80	*	1200	*	1220	*	1240	
LpMDHh1	:	-----	:	-----	:	-----	:	-
LpMDHh2	:	-----	:	-----	:	-----	:	-
LpMDHh3	:	-----	:	-----	:	-----	:	-
LpMDHh4	:	-----	:	-----	:	-----	:	-
LpMDHh5	:	-----	:	-----	:	-----	:	-
LpMDHh6	:	-----	:	-----	:	-----	:	-
LpMDHh7	:	-----	:	-----	:	-----	:	-
LpMDHh8	:	-----	:	-----	:	-----	:	-
LpMDHh9	:	-----	:	-----	:	-----	:	-
LpMDHh10	:	-----	:	-----	:	-----	:	-
LpMDHh11	:	-----	:	-----	:	-----	:	-
LpMDHh12	:	-----	:	-----	:	-----	:	-
LpMDHh13	:	-----	:	-----	:	-----	:	-
LpMDHh14	:	-----	:	-----	:	-----	:	-
LpMDHh15	:	-----	:	-----	:	-----	:	-
LpMDHh16	:	-----	:	-----	:	-----	:	-
LpMDHh17	:	-----	:	-----	:	-----	:	-
LpMDHh18	:	-----	:	-----	:	-----	:	-
LpMDHh19	:	-----	:	-----	:	-----	:	-
LpMDHh20	:	-----	:	-----	:	-----	:	-
LpMDHh21	:	-----	:	-----	:	-----	:	-
LpMDHh22	:	-----	:	-----	:	-----	:	-
LpMDHh23	:	-----	:	-----	:	-----	:	-
LpMDHh24	:	-----	:	-----	:	-----	:	-
LpMDHh25	:	-----	:	-----	:	-----	:	-
LpMDHh26	:	-----	:	-----	:	-----	:	-
LpMDHh27	:	-----	:	-----	:	-----	:	-
LpMDHh28	:	-----	:	-----	:	-----	:	-
LpMDHh29	:	-----	:	-----	:	-----	:	-
LpMDHh30	:	-----	:	-----	:	-----	:	-
LpMDHh31	:	-----	:	-----	:	-----	:	-
LpMDHh32	:	-----	:	-----	:	-----	:	-
LpMDHh34	:	-----	:	-----	:	-----	:	-
LpMDHh35	:	-----	:	-----	:	-----	:	-
LpMDHh36	:	-----	:	-----	:	-----	:	-
LpMDHh37	:	-----	:	-----	:	-----	:	-
LpMDHh38	:	-----	:	-----	:	-----	:	-
LpMDHh39	:	-----	:	-----	:	-----	:	-
LpMDHh40	:	-----	:	-----	:	-----	:	-
LpMDHh41	:	-----	:	-----	:	-----	:	-
LpMDHh42	:	-----	:	-----	:	-----	:	-
LpMDHh43	:	-----	:	-----	:	-----	:	-
LpMDHh44	:	-----	:	-----	:	-----	:	-
LpMDHh45	:	-----	:	-----	:	-----	:	-
LpMDHh46	:	-----	:	-----	:	-----	:	-
LpMDHh47	:	-----	:	-----	:	-----	:	-
LpMDHh48	:	-----	:	-----	:	-----	:	-
LpMDHh49	:	-----	:	-----	:	-----	:	-
LpMDHh50	:	-----	:	-----	:	-----	:	-
LpMDHh51	:	-----	:	-----	:	-----	:	-
LpMDHh52	:	-----	:	-----	:	-----	:	-
LpMDHh53	:	-----	:	-----	:	-----	:	-
LpMDHh54	:	-----	:	-----	:	-----	:	-
LpMDHh55	:	CATGAAACTCAT	:	-----	:	-----	:	734
LpMDHh56	:	CATG	:	-----	:	-----	:	705
LpMDHh57	:	-----	:	-----	:	-----	:	-
LpMDHh58	:	CATGAAACTCATCTCCACTCAGAACAGTTGCACATCGCGGTGCCTTTAGCTGGTTTTTCCAG	:	-----	:	-----	:	563
LpMDHh59	:	CATGAAACTCATCTCCACTCAGAACAGTTGCACATCGCGGTGCCTTTAGCTGGTTTTTCCAG	:	-----	:	-----	:	545
LpMDHh60	:	CATGAAACTCATCTCCACTCAGAACAGTTGCACATCGCGGTGCCTTTAGCTGGTTTTTCCAG	:	-----	:	-----	:	509
LpMDHh61	:	CATGAAACTCATCTCCACTCAGAACAGTTGCACATCGCGGTGCCTTTAGCTGGTTTTTCCAG	:	-----	:	-----	:	504
LpMDHh62	:	CATGAAACTCATCTCCACTCAGAACAGTTGCACATCGCGGTGCCTTTAGCTGGTTTTTCCAG	:	-----	:	-----	:	213
LpMDHh63	:	CATGAAACTCATCTCCACTCAGAACAGTTGCACATCGCGGTGCCTTTAGCTGGTTTTTCCAG	:	-----	:	-----	:	162
LpMDHh64	:	-----	:	-----	:	-----	:	-

FIGURE 30 (cont.)

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	*	1260	*	1280	*	1300	
LpMDHh1	:	-----		-----		-----	-
LpMDHh2	:	-----		-----		-----	-
LpMDHh3	:	-----		-----		-----	-
LpMDHh4	:	-----		-----		-----	-
LpMDHh5	:	-----		-----		-----	-
LpMDHh6	:	-----		-----		-----	-
LpMDHh7	:	-----		-----		-----	-
LpMDHh8	:	-----		-----		-----	-
LpMDHh9	:	-----		-----		-----	-
LpMDHh10	:	-----		-----		-----	-
LpMDHh11	:	-----		-----		-----	-
LpMDHh12	:	-----		-----		-----	-
LpMDHh13	:	-----		-----		-----	-
LpMDHh14	:	-----		-----		-----	-
LpMDHh15	:	-----		-----		-----	-
LpMDHh16	:	-----		-----		-----	-
LpMDHh17	:	-----		-----		-----	-
LpMDHh18	:	-----		-----		-----	-
LpMDHh19	:	-----		-----		-----	-
LpMDHh20	:	-----		-----		-----	-
LpMDHh21	:	-----		-----		-----	-
LpMDHh22	:	-----		-----		-----	-
LpMDHh23	:	-----		-----		-----	-
LpMDHh24	:	-----		-----		-----	-
LpMDHh25	:	-----		-----		-----	-
LpMDHh26	:	-----		-----		-----	-
LpMDHh27	:	-----		-----		-----	-
LpMDHh28	:	-----		-----		-----	-
LpMDHh29	:	-----		-----		-----	-
LpMDHh30	:	-----		-----		-----	-
LpMDHh31	:	-----		-----		-----	-
LpMDHh32	:	-----		-----		-----	-
LpMDHh34	:	-----		-----		-----	-
LpMDHh35	:	-----		-----		-----	-
LpMDHh36	:	-----		-----		-----	-
LpMDHh37	:	-----		-----		-----	-
LpMDHh38	:	-----		-----		-----	-
LpMDHh39	:	-----		-----		-----	-
LpMDHh40	:	-----		-----		-----	-
LpMDHh41	:	-----		-----		-----	-
LpMDHh42	:	-----		-----		-----	-
LpMDHh43	:	-----		-----		-----	-
LpMDHh44	:	-----		-----		-----	-
LpMDHh45	:	-----		-----		-----	-
LpMDHh46	:	-----		-----		-----	-
LpMDHh47	:	-----		-----		-----	-
LpMDHh48	:	-----		-----		-----	-
LpMDHh49	:	-----		-----		-----	-
LpMDHh50	:	-----		-----		-----	-
LpMDHh51	:	-----		-----		-----	-
LpMDHh52	:	-----		-----		-----	-
LpMDHh53	:	-----		-----		-----	-
LpMDHh54	:	-----		-----		-----	-
LpMDHh55	:	-----		-----		-----	-
LpMDHh56	:	-----		-----		-----	-
LpMDHh57	:	-----		-----		-----	-
LpMDHh58	:	TGTGTATGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGACAGGATATTG					: 625
LpMDHh59	:	TGTGTATGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGACAGGATATTG					: 607
LpMDHh60	:	TGTGTATGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGACAGGATATTG					: 571
LpMDHh61	:	TGTGTATGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGACAGGATATTG					: 566
LpMDHh62	:	TGTGTATGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGACAGGATATTG					: 275
LpMDHh63	:	TGTGTATGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGACAGGATATTG					: 224
LpMDHh64	:	-----CNAAGNAGCTTTTGTAGCTCTATTTTCGCCTGNAGATTACAGGACAGGATATTG					: 55

FIGURE 30 (cont.)

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	*	1320	*	1340	*	1360	
LpMDHh1	:	-----	:	-----	:	-----	:
LpMDHh2	:	-----	:	-----	:	-----	:
LpMDHh3	:	-----	:	-----	:	-----	:
LpMDHh4	:	-----	:	-----	:	-----	:
LpMDHh5	:	-----	:	-----	:	-----	:
LpMDHh6	:	-----	:	-----	:	-----	:
LpMDHh7	:	-----	:	-----	:	-----	:
LpMDHh8	:	-----	:	-----	:	-----	:
LpMDHh9	:	-----	:	-----	:	-----	:
LpMDHh10	:	-----	:	-----	:	-----	:
LpMDHh11	:	-----	:	-----	:	-----	:
LpMDHh12	:	-----	:	-----	:	-----	:
LpMDHh13	:	-----	:	-----	:	-----	:
LpMDHh14	:	-----	:	-----	:	-----	:
LpMDHh15	:	-----	:	-----	:	-----	:
LpMDHh16	:	-----	:	-----	:	-----	:
LpMDHh17	:	-----	:	-----	:	-----	:
LpMDHh18	:	-----	:	-----	:	-----	:
LpMDHh19	:	-----	:	-----	:	-----	:
LpMDHh20	:	-----	:	-----	:	-----	:
LpMDHh21	:	-----	:	-----	:	-----	:
LpMDHh22	:	-----	:	-----	:	-----	:
LpMDHh23	:	-----	:	-----	:	-----	:
LpMDHh24	:	-----	:	-----	:	-----	:
LpMDHh25	:	-----	:	-----	:	-----	:
LpMDHh26	:	-----	:	-----	:	-----	:
LpMDHh27	:	-----	:	-----	:	-----	:
LpMDHh28	:	-----	:	-----	:	-----	:
LpMDHh29	:	-----	:	-----	:	-----	:
LpMDHh30	:	-----	:	-----	:	-----	:
LpMDHh31	:	-----	:	-----	:	-----	:
LpMDHh32	:	-----	:	-----	:	-----	:
LpMDHh33	:	-----	:	-----	:	-----	:
LpMDHh34	:	-----	:	-----	:	-----	:
LpMDHh35	:	-----	:	-----	:	-----	:
LpMDHh36	:	-----	:	-----	:	-----	:
LpMDHh37	:	-----	:	-----	:	-----	:
LpMDHh38	:	-----	:	-----	:	-----	:
LpMDHh39	:	-----	:	-----	:	-----	:
LpMDHh40	:	-----	:	-----	:	-----	:
LpMDHh41	:	-----	:	-----	:	-----	:
LpMDHh42	:	-----	:	-----	:	-----	:
LpMDHh43	:	-----	:	-----	:	-----	:
LpMDHh44	:	-----	:	-----	:	-----	:
LpMDHh45	:	-----	:	-----	:	-----	:
LpMDHh46	:	-----	:	-----	:	-----	:
LpMDHh47	:	-----	:	-----	:	-----	:
LpMDHh48	:	-----	:	-----	:	-----	:
LpMDHh49	:	-----	:	-----	:	-----	:
LpMDHh50	:	-----	:	-----	:	-----	:
LpMDHh51	:	-----	:	-----	:	-----	:
LpMDHh52	:	-----	:	-----	:	-----	:
LpMDHh53	:	-----	:	-----	:	-----	:
LpMDHh54	:	-----	:	-----	:	-----	:
LpMDHh55	:	-----	:	-----	:	-----	:
LpMDHh56	:	-----	:	-----	:	-----	:
LpMDHh57	:	-----	:	-----	:	-----	:
LpMDHh58	:	GCAGGAAGATTGGAACAATTTGACGTCTGATTAAAACCAACCTCTTATTATTCCGTGTGTGA	:	-----	:	-----	: 687
LpMDHh59	:	GCAGGAAGATTGGAACAATTTGACGTCTGATTAAAACCA-----	:	-----	:	-----	: 646
LpMDHh60	:	GCAGGAAGATTGGAACAATTTGACGTCTGATTAAAACCAACCTCTTATTATTCCGTGTGTGTGA	:	-----	:	-----	: 633
LpMDHh61	:	GCAGGAAGATTGGAACAATTTGACGTCTGATTAAAACCAACCTCTTATTAT-----	:	-----	:	-----	: 616
LpMDHh62	:	GCAGGAAGATTGGAACAATTTGACGTCTGATTAAAACCAACCTCTTATTATTCCGTGTGTGTGA	:	-----	:	-----	: 337
LpMDHh63	:	GCAGGAAGATTGGAACAATTTGACGTCTGACAAAAA-----	:	-----	:	-----	: 265
LpMDHh64	:	GCAGGAAGATTGGAACAATTTGACGTCTGATTAAAACCAACCTCTTA-TATTCCGTGTGTGTGA	:	-----	:	-----	: 116

FIGURE 30 (cont.)

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	*	1380	*	1400	*	1420	
LpMDHh1	:	-----	:	-----	:	-----	-
LpMDHh2	:	-----	:	-----	:	-----	-
LpMDHh3	:	-----	:	-----	:	-----	-
LpMDHh4	:	-----	:	-----	:	-----	-
LpMDHh5	:	-----	:	-----	:	-----	-
LpMDHh6	:	-----	:	-----	:	-----	-
LpMDHh7	:	-----	:	-----	:	-----	-
LpMDHh8	:	-----	:	-----	:	-----	-
LpMDHh9	:	-----	:	-----	:	-----	-
LpMDHh10	:	-----	:	-----	:	-----	-
LpMDHh11	:	-----	:	-----	:	-----	-
LpMDHh12	:	-----	:	-----	:	-----	-
LpMDHh13	:	-----	:	-----	:	-----	-
LpMDHh14	:	-----	:	-----	:	-----	-
LpMDHh15	:	-----	:	-----	:	-----	-
LpMDHh16	:	-----	:	-----	:	-----	-
LpMDHh17	:	-----	:	-----	:	-----	-
LpMDHh18	:	-----	:	-----	:	-----	-
LpMDHh19	:	-----	:	-----	:	-----	-
LpMDHh20	:	-----	:	-----	:	-----	-
LpMDHh21	:	-----	:	-----	:	-----	-
LpMDHh22	:	-----	:	-----	:	-----	-
LpMDHh23	:	-----	:	-----	:	-----	-
LpMDHh24	:	-----	:	-----	:	-----	-
LpMDHh25	:	-----	:	-----	:	-----	-
LpMDHh26	:	-----	:	-----	:	-----	-
LpMDHh27	:	-----	:	-----	:	-----	-
LpMDHh28	:	-----	:	-----	:	-----	-
LpMDHh29	:	-----	:	-----	:	-----	-
LpMDHh30	:	-----	:	-----	:	-----	-
LpMDHh31	:	-----	:	-----	:	-----	-
LpMDHh32	:	-----	:	-----	:	-----	-
LpMDHh34	:	-----	:	-----	:	-----	-
LpMDHh35	:	-----	:	-----	:	-----	-
LpMDHh36	:	-----	:	-----	:	-----	-
LpMDHh37	:	-----	:	-----	:	-----	-
LpMDHh38	:	-----	:	-----	:	-----	-
LpMDHh39	:	-----	:	-----	:	-----	-
LpMDHh40	:	-----	:	-----	:	-----	-
LpMDHh41	:	-----	:	-----	:	-----	-
LpMDHh42	:	-----	:	-----	:	-----	-
LpMDHh43	:	-----	:	-----	:	-----	-
LpMDHh44	:	-----	:	-----	:	-----	-
LpMDHh45	:	-----	:	-----	:	-----	-
LpMDHh46	:	-----	:	-----	:	-----	-
LpMDHh47	:	-----	:	-----	:	-----	-
LpMDHh48	:	-----	:	-----	:	-----	-
LpMDHh49	:	-----	:	-----	:	-----	-
LpMDHh50	:	-----	:	-----	:	-----	-
LpMDHh51	:	-----	:	-----	:	-----	-
LpMDHh52	:	-----	:	-----	:	-----	-
LpMDHh53	:	-----	:	-----	:	-----	-
LpMDHh54	:	-----	:	-----	:	-----	-
LpMDHh55	:	-----	:	-----	:	-----	-
LpMDHh56	:	-----	:	-----	:	-----	-
LpMDHh57	:	-----	:	-----	:	-----	-
LpMDHh58	:	TGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGCCATGATATTGGCAGG-	:		:		748
LpMDHh59	:	TGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGCCATGATATTGGCAGGA	:		:		695
LpMDHh60	:	TGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGACATGATATTGGCAGGA	:		:		399
LpMDHh61	:	TGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGCCACGATATTGGCAGGA	:		:		-
LpMDHh62	:	TGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGCCACGATATTGGCAGGA	:		:		178
LpMDHh63	:	TGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGCCACGATATTGGCAGGA	:		:		-
LpMDHh64	:	TGAATGAGGCTTTTGTAGCTCTATTTTCGCCTGATGATTTACAGGCCACGATATTGGCAGGA	:		:		-

FIGURE 30 (cont.)

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	*	1440	*	1460	*	1480	
LpMDHh1	:	-----	:	-----	:	-----	-
LpMDHh2	:	-----	:	-----	:	-----	-
LpMDHh3	:	-----	:	-----	:	-----	-
LpMDHh4	:	-----	:	-----	:	-----	-
LpMDHh5	:	-----	:	-----	:	-----	-
LpMDHh6	:	-----	:	-----	:	-----	-
LpMDHh7	:	-----	:	-----	:	-----	-
LpMDHh8	:	-----	:	-----	:	-----	-
LpMDHh9	:	-----	:	-----	:	-----	-
LpMDHh10	:	-----	:	-----	:	-----	-
LpMDHh11	:	-----	:	-----	:	-----	-
LpMDHh12	:	-----	:	-----	:	-----	-
LpMDHh13	:	-----	:	-----	:	-----	-
LpMDHh14	:	-----	:	-----	:	-----	-
LpMDHh15	:	-----	:	-----	:	-----	-
LpMDHh16	:	-----	:	-----	:	-----	-
LpMDHh17	:	-----	:	-----	:	-----	-
LpMDHh18	:	-----	:	-----	:	-----	-
LpMDHh19	:	-----	:	-----	:	-----	-
LpMDHh20	:	-----	:	-----	:	-----	-
LpMDHh21	:	-----	:	-----	:	-----	-
LpMDHh22	:	-----	:	-----	:	-----	-
LpMDHh23	:	-----	:	-----	:	-----	-
LpMDHh24	:	-----	:	-----	:	-----	-
LpMDHh25	:	-----	:	-----	:	-----	-
LpMDHh26	:	-----	:	-----	:	-----	-
LpMDHh27	:	-----	:	-----	:	-----	-
LpMDHh28	:	-----	:	-----	:	-----	-
LpMDHh29	:	-----	:	-----	:	-----	-
LpMDHh30	:	-----	:	-----	:	-----	-
LpMDHh31	:	-----	:	-----	:	-----	-
LpMDHh32	:	-----	:	-----	:	-----	-
LpMDHh34	:	-----	:	-----	:	-----	-
LpMDHh35	:	-----	:	-----	:	-----	-
LpMDHh36	:	-----	:	-----	:	-----	-
LpMDHh37	:	-----	:	-----	:	-----	-
LpMDHh38	:	-----	:	-----	:	-----	-
LpMDHh39	:	-----	:	-----	:	-----	-
LpMDHh40	:	-----	:	-----	:	-----	-
LpMDHh41	:	-----	:	-----	:	-----	-
LpMDHh42	:	-----	:	-----	:	-----	-
LpMDHh43	:	-----	:	-----	:	-----	-
LpMDHh44	:	-----	:	-----	:	-----	-
LpMDHh45	:	-----	:	-----	:	-----	-
LpMDHh46	:	-----	:	-----	:	-----	-
LpMDHh47	:	-----	:	-----	:	-----	-
LpMDHh48	:	-----	:	-----	:	-----	-
LpMDHh49	:	-----	:	-----	:	-----	-
LpMDHh50	:	-----	:	-----	:	-----	-
LpMDHh51	:	-----	:	-----	:	-----	-
LpMDHh52	:	-----	:	-----	:	-----	-
LpMDHh53	:	-----	:	-----	:	-----	-
LpMDHh54	:	-----	:	-----	:	-----	-
LpMDHh55	:	-----	:	-----	:	-----	-
LpMDHh56	:	-----	:	-----	:	-----	-
LpMDHh57	:	-----	:	-----	:	-----	-
LpMDHh58	:	-----	:	-----	:	-----	-
LpMDHh59	:	-----	:	-----	:	-----	-
LpMDHh60	:	GGATTGGAACAATTTGACGCCTGATTTAAACCAACCTCTTATTACTAAAAAAA	:	-----	:	-----	750
LpMDHh61	:	-----	:	-----	:	-----	-
LpMDHh62	:	GGATTGGAACAANNANANN	:	-----	:	-----	418
LpMDHh63	:	-----	:	-----	:	-----	-
LpMDHh64	:	GGATTGGAACAATTTGACGCCTGATTTAAACCAACCTCTTATTATTCTAAAAAAA	:	-----	:	-----	236

FIGURE 30 (cont.)

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LpMDHi : GTNCATAAAGCTGCCCAAAGCAATNCGTGNAATATTATCAGTAACCCTGTCAATTCTACC : 60

LpMDHi : GTACCAATTGCTGCTGAAGTATTTAAAAAAGCTGGGACATACAATNCTAAGAGATTGTTG : 120

LpMDHi : GGGGTTGACAACNGTTNGATGNNANTGACAGACCNTGCTCTTNGNNGNCGAGGTNCN : 177

FIGURE 31

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LpMDHi : XHKAAQSNXXNIISNPVNSTVPPIAAEVFKKAGTYNXKRLGLVDNXXMXXTDXALXXRG : 58

FIGURE 32

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LpMDHj : ANAAAGGAGCCGACGCAGGGCGCAGAATTCCATCTGCTNACTCTGCCACCACCCAAGTT : 60
 * 20 * 40 * 60

LpMDHj : GGACATGGCGTCAGCTGTTACAATCAGTTCAGTCAGCGCGCAGGCCGCTTTGGTTTCAA : 120
 * 80 * 100 * 120

LpMDHj : ACCAAGGAACCATGGCAGCACGAGCTACAGTGGCCTAAAGGCATCATCGTCGTCGATCAG : 180
 * 140 * 160 * 180

LpMDHj : CTTTGAATCAGGAACATCATTCCTGGGCAAGACCGCCTCCCTCCGGGCAACTGTTACCAC : 240
 * 200 * 220 * 240

LpMDHj : AAGGGTTGTGCCAAAGGCGAAGTCTGGGTCGCAGATATCGCCTCAGGCATCTTACAAGGT : 300
 * 260 * 280 * 300

LpMDHj : GGCGGTGCTTGGTGCTGCTGGTGGCATCGGTCAACCACTGGGCCTGCTGATCAAGATGTC : 360
 * 320 * 340 * 360

LpMDHj : TCCTCTGGTCTCGGAGCTGCGCCTGTATGATATCGCGAATGTCAAGGGCGTCGCTGCAGA : 420
 * 380 * 400 * 420

LpMDHj : TCTCAGCCACTGCAACACGCCTGCTCAGGTCATGGACTTCACTGGCCCCGCAGAGCTAGC : 480
 * 440 * 460 * 480

LpMDHj : AGAGTGCTTGAAAGGTGTGGATGTTGTCGTCATCCCTGCGGGTGTCCCAAGGAAGCCAGG : 540
 * 500 * 520 * 540

LpMDHj : CATGACCCGTGATGACCTTTTTTAACATNAATGCGGGAATCGNCAAGTCGCTTATTGAGGC : 600
 * 560 * 580 * 600

LpMDHj : TGTTGCAGACAATTGCCCTGAGGGCCTTATTCATATCATCAACAACCCCGGTCAAACCTCC : 660
 * 620 * 640 * 660

LpMDHj : CCCT : 664

FIGURE 33

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LpMDHj : XRSRRRGAEFHLX^{*}TLPPP²⁰KLDMASAVTI^{*}SSVSAQAALVSKPRNHG⁴⁰STSYSGLKASS^{*}SSSIS : 60

LpMDHj : FESGTSFLGKTASLRATVT^{*}TRVVPKAKSGSQIS⁸⁰PQASYKVAVLGAAGGIGQPLGLLIK^{*}MS : 120

LpMDHj : PLVSELRLYDIANVKGVAA^{*}DLSHCNTPAQVMDFTGPAELAECLKGVDV¹⁴⁰VVIPAGVPRKPG : 180

LpMDHj : MTRDDL^{*}FNXNAGIXKSLIEAVADNCPEGLIHIINNPGQ²⁰⁰TPP : 221

FIGURE 34

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LpMDHk : * 20 * 40 * 60
 : TNTTTANCCCNCCAANTATCCAGNANCCACCTGGCCCTACACANAANAAAAACAAAAANN : 60

LpMDHk : * 80 * 100 * 120
 : AACCAGNACGCAAGGGGCGAGCCGGGGCGCACGCAGCAATCCCATCTGCTCACCAACCC : 120

LpMDHk : * 140 * 160 * 180
 : AAGTTGGAGATGGCATCAGCTGTTACCATCAGCTCAGTCAGCGCGCAGGCCGCTTTGGTC : 180

LpMDHk : * 200 * 220 * 240
 : TCGAAACCAAGGAATCATGGCAGCACAAAGCTACAGTGGCCTAAAGGCATCATCATCGTCG : 240

LpMDHk : * 260 * 280 * 300
 : ATCAGCTTCGAATCAGGGACATCATTCCTGGGCAAGACCGCCTCTCTTCGGGCGACTATC : 300

LpMDHk : * 320 * 340 * 360
 : ACCTCAAGGATTGTGCCAAAGGCAAAGTCTGGGTCTCAGATATCACCTCAGGCCTCGTAC : 360

LpMDHk : * 380 * 400 * 420
 : AAGGTGGCGGTGCTTGGTGCTGCCGGTGGCATCGGTCAACCACTGGGCCTGCTGATCAAG : 420

LpMDHk : * 440 * 460 * 480
 : ATGTCTCCTCTGGTCTCAGAGCTGCGCCTGTATGATATTGCCAATGTCAAGGGAGTCGCT : 480

LpMDHk : * 500 * 520 * 540
 : GCAGATCTCAGCCACTGCAACACGCCTTCTCAGGTCATGGACTTCACTGGCCCAGCAGAA : 540

LpMDHk : * 560 * 580 * 600
 : CTAGCTGACTGCTTGAAAGGTGTTGATGTTGTGTCGTATCCCTGCGGGTGTCCTCAAGGAAG : 600

LpMDHk : * 620 * 640 * 660
 : CCAGGCATGACCCGTGATGACCTTTTAAACATCAATGCGGGCATCGTCAAGTCGCTTATT : 660

LpMDHk : * 680 * 700 * 720
 : GAGGCTGTTGCAGACAACTGCCCTGAGGCCTTCATCCATATCATCAGCAACCCGGTCAAC : 720

LpMDHk : * 740 * 760 * 780
 : TCCACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAGGGCGTCTACAACCCCAAGAAG : 780

LpMDHk : * 800 * 820 * 840
 : CTCTTCGGGGTTTCCACCCTGGATGTTGTGTCAGAGCTAACACATTTGTAGCTCAGAAGAAG : 840

LpMDHk : * 860 * 880 * 900
 : AACCTCAGCCTCATCGATGTTGATGTCCAGTTGTCGGTGGCCATGCTGGGATCACGATT : 900

FIGURE 35

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LpMDHk : * 920 * 940 * 960
CTGCCTCTGTTGTCCAAGACTAGGCCTTCTGTCAGCTTCACGGACGAGGAAACTGAACAG : 960

LpMDHk : * 980 * 1000 * 1020
CTGACAAAGAGGATACAGAACGCTGGGACAGAGGCGGTGGAGGCGAAGGCTGGTGCTGGC :1020

LpMDHk : * 1040 * 1060 * 1080
TCTGCTACTCTGTCCATGGCTTATGCCGCTGCCAGATTTGTTGAGTCATCGCTCCGCGCA :1080

LpMDHk : * 1100 * 1120 * 1140
ATGGCTGGTGATCCAGATGTTTACGAGTGCACGTATGTTGAGTCTGAGTTAACAGAGCTT :1140

LpMDHk : * 1160 * 1180 * 1200
CCATTCTTCGCGTCCAGAGTTAAGCTTGGGAAGGACGGNGTTGAGTCCATCATTTCTCTCC :1200

LpMDHk : * 1220 * 1240 * 1260
GACCTGGAGGGAGTGACGGAGTACGAGGCCAAGGCGCTTGANGCATTGAAGGCTGAGCTG :1260

LpMDHk : AAG : 1263

FIGURE 35 (cont.)

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* 20 * 40 * 60
 LpMDHk : XLXXQXSXXHLALHXXKTKXNQXARGEPRGTQQFPSAHQPKLEMASAVTISSVSAQAALV : 60

* 80 * 100 * 120
 LpMDHk : SKPRNHGSTSYGLKASSSSISFESGTSFLGKTASLRATITSRIVPKAKSGSQISPQASY : 120

* 140 * 160 * 180
 LpMDHk : KVAVLGAAGGIGQPLGLLIKMSPLVSELRLYDIANVKGVAAADLSHCNTPSQVMDFTGPÆE : 180

* 200 * 220 * 240
 LpMDHk : LADCLKGV DVVVIPAGVPRKPGMTRDDL FNINAGIVKSLIEAVADNCPEAFIHIISNPVN : 240

* 260 * 280 * 300
 LpMDHk : STVP IAAEILKQKGVYNPKKLFVSTLDVVRANTFVAQKKNLSLIDVDVPVVGGHAGITI : 300

* 320 * 340 * 360
 LpMDHk : LPLL SKTRPSVSFTDEETEQLTKRIQNAGTEAVEAKAGAGSATLSMAYAAARFVESSLRA : 360

* 380 * 400 * 420
 LpMDHk : MAGDPDVYECTYVQSELTELPFFASRVKLGKDXVESIISDLEGVTEYEAKALKALKÆEL : 420

LpMDHk : K : 421

FIGURE 36

[illegible]

FIGURE 37

		*	80	*	100	*	120	
LpMDHk1 :	A	GCCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	118				
LpMDHk2 :	A	-CCAGNA-GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	85				
LpMDHk3 :	A	CCAGNCGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	86				
LpMDHk4 :	A	-CCAGNA-GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	84				
LpMDHk5 :	A	CCAGNA-GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	85				
LpMDHk6 :	A	CCAGNCGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	84				
LpMDHk7 :	A	TCCAGNA-GC-AGGGGCGA N CGGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	82				
LpMDHk8 :	A	CCAGNACGC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	83				
LpMDHk9 :	A	-CCAGNA-GCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	83				
LpMDHk10 :	A	-CCAGNA-GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	82				
LpMDHk11 :	A	C T CG C CGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	8				
LpMDHk12 :	A	CCAGN C -GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	82				
LpMDHk13 :	A	CCAGNA-GC-AG N GGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	81				
LpMDHk14 :	A	CC A GN C GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	80				
LpMDHk15 :	A	-CCAGNA-GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	79				
LpMDHk16 :	A	CCAGNAG-CAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	79				
LpMDHk17 :	A	CCAGN C GC-CAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	78				
LpMDHk18 :	A	CCAG-CCGAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	80				
LpMDHk19 :	A	CCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	80				
LpMDHk20 :	A	CCAGN C CGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	80				
LpMDHk21 :	A	CCAGN C CGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	80				
LpMDHk22 :	A	CCAGN C CGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	80				
LpMDHk23 :	A	CCAGN C GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	77				
LpMDHk24 :	A	CCAGN C GC-AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	77				
LpMDHk25 :	A	-CCAGNA-GCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	77				
LpMDHk26 :	A	ANCCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	79				
LpMDHk27 :	A	CCAG-CCGAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	78				
LpMDHk28 :	A	CCAGN C CGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	79				
LpMDHk29 :	A	CC C -GN C GC-CAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	74				
LpMDHk30 :	A	ANCCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	78				
LpMDHk31 :	A	-CCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	76				
LpMDHk32 :	A	ANCCAGNA-GCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	75				
LpMDHk33 :	A	-CCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	75				
LpMDHk34 :	A	CCAG C GC-CCGAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	75				
LpMDHk35 :	A	CCAG-CCGAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	74				
LpMDHk36 :	A	-CCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	74				
LpMDHk37 :	A	--A-CA--AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	67				
LpMDHk38 :	A	AAAAN-CA--AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	70				
LpMDHk39 :	A	CCAGNAGCCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	72				
LpMDHk40 :	A	AAA A A-CA N AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	65				
LpMDHk41 :	A	AAA A ATA A ANGGG-CCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	70				
LpMDHk42 :	A	--N-CA--AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	66				
LpMDHk43 :	A	CCAG-NGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	70				
LpMDHk44 :	A	NACCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	71				
LpMDHk45 :	A	-CCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	68				
LpMDHk46 :	A	AA A NA-NAAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	68				
LpMDHk47 :	A	NACCAGNACGCAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	70				
LpMDHk48 :	A	AA A NA-NA A AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	68				
LpMDHk49 :	A	AA A NA-AA A AGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	68				
LpMDHk50 :	A	AA A AGTA A AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	67				
LpMDHk51 :	A	AA A ANC A AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	68				
LpMDHk52 :	A	AA A ANA A ANGGG-CCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	68				
LpMDHk53 :	A	AA A AGA A AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	68				
LpMDHk54 :	A	AA A ANA A ANGGG-CCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	64				
LpMDHk55 :	A	AA A AGA A AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	57				
LpMDHk56 :	A	--A A -AA A NAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	53				
LpMDHk57 :	A	--AA N NA A AAAGGGGCGAGCCGGGGCGCAGCAGCAATTCCCATCTGCTCACCAACCC	:	53				

FIGURE 37 (cont.)

[illegible]

FIGURE 37 (cont.)

	*	200	*	220	*	240																																	
LpMDHk1 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	G	T	C	:	238			
LpMDHk2 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	205
LpMDHk3 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	206
LpMDHk4 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	204
LpMDHk5 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	205
LpMDHk6 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	204
LpMDHk7 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	202
LpMDHk8 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	203
LpMDHk9 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	203
LpMDHk10 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	202
LpMDHk11 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	201
LpMDHk12 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	202
LpMDHk13 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	201
LpMDHk14 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	200
LpMDHk15 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	199
LpMDHk16 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	199
LpMDHk17 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	198
LpMDHk18 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G	T	C	:	200
LpMDHk19 :	T	C	G	A	A	C	C	A	A	G	A	A	T	C	A	T	G	G	C	A	C	A	A	G	C	A	T	C	A	T	C	A	T	C	G				

FIGURE 37 (cont.)

* 260 * 280 * 300

FIGURE 37 (cont.)

[illegible]

FIGURE 37 (cont.)

[illegible]

FIGURE 37 (cont.)

[illegible]

FIGURE 37 (cont.)

* 500 * 520 * 540

FIGURE 37 (cont.)

* 560 * 580 * 600

FIGURE 37 (cont.)

[illegible]

FIGURE 37 (cont.)

[illegible]

FIGURE 37 (cont.)

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		*	740	*	760	*	780	
LpMDHk1	:	-----		-----		-----		-
LpMDHk2	:	-----		-----		-----		-
LpMDHk3	:	TCCACG	GTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					746
LpMDHk4	:	TTC	ACTGT	-----				692
LpMDHk5	:	TTC	ACTGTGA	-----				695
LpMDHk6	:	-----		-----		-----		-
LpMDHk7	:	-----		-----		-----		-
LpMDHk8	:	-----		-----		-----		-
LpMDHk9	:	TTC	ACTGTGCCGATTGCTGCTGA	-----				706
LpMDHk10	:	TCC	ACTGTGCCGATTGCTGCTGAA	-----				706
LpMDHk11	:	TCCACG	GTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					741
LpMDHk12	:	TTC	ACTGTG	-----				691
LpMDHk13	:	TTC	ACTGTGCCGATTGCTGCTGAG	-----				705
LpMDHk14	:	-----		-----		-----		-
LpMDHk15	:	TCC	ACTGTGCCGATTGCTGCTGAGAT	-----				705
LpMDHk16	:	TTC	ACTGTGCCGATTGCTGCTGAGAT	-----				706
LpMDHk17	:	-----		-----		-----		-
LpMDHk18	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					740
LpMDHk19	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					740
LpMDHk20	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					740
LpMDHk21	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					740
LpMDHk22	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					740
LpMDHk23	:	-----		-----		-----		-
LpMDHk24	:	-----		-----		-----		-
LpMDHk25	:	TCC	ACTGTGCCGATTGCTGCT	-----				698
LpMDHk26	:	TTC	ACTGTGCCGATTGCTGCTGAGATTCTGAAAC	-----				713
LpMDHk27	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					738
LpMDHk28	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					739
LpMDHk29	:	TTC	ACTGTGC	-----				684
LpMDHk30	:	TTC	ACTGTGCCGATTG	-----				695
LpMDHk31	:	TTC	ACTGTGCCGATTGCTG	-----				695
LpMDHk32	:	-----		-----		-----		-
LpMDHk33	:	-----		-----		-----		-
LpMDHk34	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					734
LpMDHk35	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					734
LpMDHk36	:	TTC	ACTGTGCCGATTGCTGCTGAGATTCTGAA	-----				706
LpMDHk37	:	TTC	ACTGTGCCGATTGCTGNAAT	-----				682
LpMDHk38	:	TCC	ACTGTGCCGATTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					712
LpMDHk39	:	-----		-----		-----		-
LpMDHk40	:	TTC	ACTGTGCCGATT	-----				683
LpMDHk41	:	TCC	ACTGTGCCGATTGCTGCTGAGAG	-----				695
LpMDHk42	:	TCC	ACTGTGCCGATTGCTGCTGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					726
LpMDHk43	:	-----		-----		-----		-
LpMDHk44	:	TTC	ACTGTGCCGATT	-----				686
LpMDHk45	:	TTC	ACTGTGCCGATTGCTGCTGCTG	-----				693
LpMDHk46	:	-----		-----		-----		-
LpMDHk47	:	-----		-----		-----		-
LpMDHk48	:	-----		-----		-----		-
LpMDHk49	:	TCC	ACTGTGCCGATTG	-----				681
LpMDHk50	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					727
LpMDHk51	:	-----		-----		-----		-
LpMDHk52	:	TTC	ACTGTGCCGATT	-----				680
LpMDHk53	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					726
LpMDHk54	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					702
LpMDHk55	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					723
LpMDHk56	:	TTC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					707
LpMDHk57	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					687
LpMDHk58	:	-----		-----		-----		-
LpMDHk59	:	TTC	-----					642
LpMDHk60	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					702
LpMDHk61	:	TTC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					695
LpMDHk62	:	-----		-----		-----		-
LpMDHk63	:	T	-----					630
LpMDHk64	:	TTC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					671
LpMDHk65	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					407
LpMDHk66	:	TCC	ACTGTGCCGATTGCTGCTGAGAGATTCTGAAACAGAAAGGGCGTCTACAACCCCAAGAAG					294

FIGURE 37 (cont.)

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	*	800	*	820	*	840	
LpMDHk1	:	-----	:	-----	:	-----	:
LpMDHk2	:	-----	:	-----	:	-----	:
LpMDHk3	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGTAGCTCANA	:	-----	:	-----	: 801
LpMDHk4	:	-----	:	-----	:	-----	:
LpMDHk5	:	-----	:	-----	:	-----	:
LpMDHk6	:	-----	:	-----	:	-----	:
LpMDHk7	:	-----	:	-----	:	-----	:
LpMDHk8	:	-----	:	-----	:	-----	:
LpMDHk9	:	-----	:	-----	:	-----	:
LpMDHk10	:	-----	:	-----	:	-----	:
LpMDHk11	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGTAGCTCANAANAAN	:	-----	:	-----	: 801
LpMDHk12	:	-----	:	-----	:	-----	:
LpMDHk13	:	-----	:	-----	:	-----	:
LpMDHk14	:	-----	:	-----	:	-----	:
LpMDHk15	:	-----	:	-----	:	-----	:
LpMDHk16	:	-----	:	-----	:	-----	:
LpMDHk17	:	-----	:	-----	:	-----	:
LpMDHk18	:	CTCTTCGGGGTTTTCACCG	:	-----	:	-----	: 758
LpMDHk19	:	CTCTTCGGGGTTTTCACCCCTG	:	-----	:	-----	: 761
LpMDHk20	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAG	:	-----	:	-----	: 772
LpMDHk21	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAN	:	-----	:	-----	: 772
LpMDHk22	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGTAGCTCANAAGAAG	:	-----	:	-----	: 800
LpMDHk23	:	-----	:	-----	:	-----	:
LpMDHk24	:	-----	:	-----	:	-----	:
LpMDHk25	:	-----	:	-----	:	-----	:
LpMDHk26	:	-----	:	-----	:	-----	:
LpMDHk27	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGA	:	-----	:	-----	: 771
LpMDHk28	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAG	:	-----	:	-----	: 773
LpMDHk29	:	-----	:	-----	:	-----	:
LpMDHk30	:	-----	:	-----	:	-----	:
LpMDHk31	:	-----	:	-----	:	-----	:
LpMDHk32	:	-----	:	-----	:	-----	:
LpMDHk33	:	-----	:	-----	:	-----	:
LpMDHk34	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTC	:	-----	:	-----	: 764
LpMDHk35	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGTAGCT	:	-----	:	-----	: 785
LpMDHk36	:	-----	:	-----	:	-----	:
LpMDHk37	:	-----	:	-----	:	-----	:
LpMDHk38	:	-----	:	-----	:	-----	:
LpMDHk39	:	-----	:	-----	:	-----	:
LpMDHk40	:	-----	:	-----	:	-----	:
LpMDHk41	:	-----	:	-----	:	-----	:
LpMDHk42	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGNAGCTCANAANAAG	:	-----	:	-----	: 786
LpMDHk43	:	-----	:	-----	:	-----	:
LpMDHk44	:	-----	:	-----	:	-----	:
LpMDHk45	:	-----	:	-----	:	-----	:
LpMDHk46	:	-----	:	-----	:	-----	:
LpMDHk47	:	-----	:	-----	:	-----	:
LpMDHk48	:	-----	:	-----	:	-----	:
LpMDHk49	:	-----	:	-----	:	-----	:
LpMDHk50	:	CTCTTCGGGGTTTC	:	-----	:	-----	: 741
LpMDHk51	:	-----	:	-----	:	-----	:
LpMDHk52	:	-----	:	-----	:	-----	:
LpMDHk53	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGGGCTAACACATT	:	-----	:	-----	: 770
LpMDHk54	:	-----	:	-----	:	-----	:
LpMDHk55	:	CTCTTCGGGGTTTTCGCGCCTGGATGTTGTCAGGGCTAACACATTTGTAGCTCAA	:	-----	:	-----	: 777
LpMDHk56	:	-----	:	-----	:	-----	:
LpMDHk57	:	-----	:	-----	:	-----	:
LpMDHk58	:	-----	:	-----	:	-----	:
LpMDHk59	:	-----	:	-----	:	-----	:
LpMDHk60	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGTAGCTCAGAAGAAG	:	-----	:	-----	: 762
LpMDHk61	:	CTCTTA	:	-----	:	-----	: 701
LpMDHk62	:	-----	:	-----	:	-----	:
LpMDHk63	:	-----	:	-----	:	-----	:
LpMDHk64	:	-----	:	-----	:	-----	:
LpMDHk65	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGTAGCTCAGAAGAAG	:	-----	:	-----	: 467
LpMDHk66	:	CTCTTCGGGGTTTTCACCCCTGGATGTTGTCAGAGCTAACACATTTGTAGCTCAGAAGAAG	:	-----	:	-----	: 354

FIGURE 37 (cont.)

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	*	860	*	880	*	900	
LpMDHk1	:	-----	-----	-----	-----	-----	-
LpMDHk2	:	-----	-----	-----	-----	-----	-
LpMDHk3	:	-----	-----	-----	-----	-----	-
LpMDHk4	:	-----	-----	-----	-----	-----	-
LpMDHk5	:	-----	-----	-----	-----	-----	-
LpMDHk6	:	-----	-----	-----	-----	-----	-
LpMDHk7	:	-----	-----	-----	-----	-----	-
LpMDHk8	:	-----	-----	-----	-----	-----	-
LpMDHk9	:	-----	-----	-----	-----	-----	-
LpMDHk10	:	-----	-----	-----	-----	-----	-
LpMDHk11	:	A-----	-----	-----	-----	-----	802
LpMDHk12	:	-----	-----	-----	-----	-----	-
LpMDHk13	:	-----	-----	-----	-----	-----	-
LpMDHk14	:	-----	-----	-----	-----	-----	-
LpMDHk15	:	-----	-----	-----	-----	-----	-
LpMDHk16	:	-----	-----	-----	-----	-----	-
LpMDHk17	:	-----	-----	-----	-----	-----	-
LpMDHk18	:	-----	-----	-----	-----	-----	-
LpMDHk19	:	-----	-----	-----	-----	-----	-
LpMDHk20	:	-----	-----	-----	-----	-----	-
LpMDHk21	:	-----	-----	-----	-----	-----	-
LpMDHk22	:	AACCTCA-----	-----	-----	-----	-----	807
LpMDHk23	:	-----	-----	-----	-----	-----	-
LpMDHk24	:	-----	-----	-----	-----	-----	-
LpMDHk25	:	-----	-----	-----	-----	-----	-
LpMDHk26	:	-----	-----	-----	-----	-----	-
LpMDHk27	:	-----	-----	-----	-----	-----	-
LpMDHk28	:	-----	-----	-----	-----	-----	-
LpMDHk29	:	-----	-----	-----	-----	-----	-
LpMDHk30	:	-----	-----	-----	-----	-----	-
LpMDHk31	:	-----	-----	-----	-----	-----	-
LpMDHk32	:	-----	-----	-----	-----	-----	-
LpMDHk33	:	-----	-----	-----	-----	-----	-
LpMDHk34	:	-----	-----	-----	-----	-----	-
LpMDHk35	:	-----	-----	-----	-----	-----	-
LpMDHk36	:	-----	-----	-----	-----	-----	-
LpMDHk37	:	-----	-----	-----	-----	-----	-
LpMDHk38	:	-----	-----	-----	-----	-----	-
LpMDHk39	:	-----	-----	-----	-----	-----	-
LpMDHk40	:	-----	-----	-----	-----	-----	-
LpMDHk41	:	-----	-----	-----	-----	-----	-
LpMDHk42	:	AACCTCAGTCTTATCG-----	-----	-----	-----	-----	802
LpMDHk43	:	-----	-----	-----	-----	-----	-
LpMDHk44	:	-----	-----	-----	-----	-----	-
LpMDHk45	:	-----	-----	-----	-----	-----	-
LpMDHk46	:	-----	-----	-----	-----	-----	-
LpMDHk47	:	-----	-----	-----	-----	-----	-
LpMDHk48	:	-----	-----	-----	-----	-----	-
LpMDHk49	:	-----	-----	-----	-----	-----	-
LpMDHk50	:	-----	-----	-----	-----	-----	-
LpMDHk51	:	-----	-----	-----	-----	-----	-
LpMDHk52	:	-----	-----	-----	-----	-----	-
LpMDHk53	:	-----	-----	-----	-----	-----	-
LpMDHk54	:	-----	-----	-----	-----	-----	-
LpMDHk55	:	-----	-----	-----	-----	-----	-
LpMDHk56	:	-----	-----	-----	-----	-----	-
LpMDHk57	:	-----	-----	-----	-----	-----	-
LpMDHk58	:	-----	-----	-----	-----	-----	-
LpMDHk59	:	-----	-----	-----	-----	-----	-
LpMDHk60	:	AACCT-----	-----	-----	-----	-----	767
LpMDHk61	:	-----	-----	-----	-----	-----	-
LpMDHk62	:	-----	-----	-----	-----	-----	-
LpMDHk63	:	-----	-----	-----	-----	-----	-
LpMDHk64	:	-----	-----	-----	-----	-----	-
LpMDHk65	:	AACCTCAGCCTCATCGATGTTGATGTCCAGTTGTCGGTGGCCATGCTGGGATCACGATT	-----	-----	-----	-----	527
LpMDHk66	:	AACCTCAGCCTCATCGATGTTGATGTCCAGTTGTCGGTGGCCATGCTGGGATCACGATT	-----	-----	-----	-----	414

FIGURE 37 (cont.)

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	*	920	*	940	*	960	
LpMDHk1	:	-----	:	-----	:	-----	:
LpMDHk2	:	-----	:	-----	:	-----	:
LpMDHk3	:	-----	:	-----	:	-----	:
LpMDHk4	:	-----	:	-----	:	-----	:
LpMDHk5	:	-----	:	-----	:	-----	:
LpMDHk6	:	-----	:	-----	:	-----	:
LpMDHk7	:	-----	:	-----	:	-----	:
LpMDHk8	:	-----	:	-----	:	-----	:
LpMDHk9	:	-----	:	-----	:	-----	:
LpMDHk10	:	-----	:	-----	:	-----	:
LpMDHk11	:	-----	:	-----	:	-----	:
LpMDHk12	:	-----	:	-----	:	-----	:
LpMDHk13	:	-----	:	-----	:	-----	:
LpMDHk14	:	-----	:	-----	:	-----	:
LpMDHk15	:	-----	:	-----	:	-----	:
LpMDHk16	:	-----	:	-----	:	-----	:
LpMDHk17	:	-----	:	-----	:	-----	:
LpMDHk18	:	-----	:	-----	:	-----	:
LpMDHk19	:	-----	:	-----	:	-----	:
LpMDHk20	:	-----	:	-----	:	-----	:
LpMDHk21	:	-----	:	-----	:	-----	:
LpMDHk22	:	-----	:	-----	:	-----	:
LpMDHk23	:	-----	:	-----	:	-----	:
LpMDHk24	:	-----	:	-----	:	-----	:
LpMDHk25	:	-----	:	-----	:	-----	:
LpMDHk26	:	-----	:	-----	:	-----	:
LpMDHk27	:	-----	:	-----	:	-----	:
LpMDHk28	:	-----	:	-----	:	-----	:
LpMDHk29	:	-----	:	-----	:	-----	:
LpMDHk30	:	-----	:	-----	:	-----	:
LpMDHk31	:	-----	:	-----	:	-----	:
LpMDHk32	:	-----	:	-----	:	-----	:
LpMDHk33	:	-----	:	-----	:	-----	:
LpMDHk34	:	-----	:	-----	:	-----	:
LpMDHk35	:	-----	:	-----	:	-----	:
LpMDHk36	:	-----	:	-----	:	-----	:
LpMDHk37	:	-----	:	-----	:	-----	:
LpMDHk38	:	-----	:	-----	:	-----	:
LpMDHk39	:	-----	:	-----	:	-----	:
LpMDHk40	:	-----	:	-----	:	-----	:
LpMDHk41	:	-----	:	-----	:	-----	:
LpMDHk42	:	-----	:	-----	:	-----	:
LpMDHk43	:	-----	:	-----	:	-----	:
LpMDHk44	:	-----	:	-----	:	-----	:
LpMDHk45	:	-----	:	-----	:	-----	:
LpMDHk46	:	-----	:	-----	:	-----	:
LpMDHk47	:	-----	:	-----	:	-----	:
LpMDHk48	:	-----	:	-----	:	-----	:
LpMDHk49	:	-----	:	-----	:	-----	:
LpMDHk50	:	-----	:	-----	:	-----	:
LpMDHk51	:	-----	:	-----	:	-----	:
LpMDHk52	:	-----	:	-----	:	-----	:
LpMDHk53	:	-----	:	-----	:	-----	:
LpMDHk54	:	-----	:	-----	:	-----	:
LpMDHk55	:	-----	:	-----	:	-----	:
LpMDHk56	:	-----	:	-----	:	-----	:
LpMDHk57	:	-----	:	-----	:	-----	:
LpMDHk58	:	-----	:	-----	:	-----	:
LpMDHk59	:	-----	:	-----	:	-----	:
LpMDHk60	:	-----	:	-----	:	-----	:
LpMDHk61	:	-----	:	-----	:	-----	:
LpMDHk62	:	-----	:	-----	:	-----	:
LpMDHk63	:	-----	:	-----	:	-----	:
LpMDHk64	:	-----	:	-----	:	-----	:
LpMDHk65	:	CTGCCTCTGTTGTCCAAGACTAGGCCTTCTGTCTCAGCTTCACGGACGAGGAAACTGAACAG	:		:		: 587
LpMDHk66	:	CTGCCTCTGTTGTCCAAGACTAGGCCTTCTGTCTCAGCTTCACGGACGAGGAAACTGAACAG	:		:		: 474

FIGURE 37 (cont.)

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	*	980	*	1000	*	1020	
LpMDHk1	:	-----	:	-----	:	-----	-
LpMDHk2	:	-----	:	-----	:	-----	-
LpMDHk3	:	-----	:	-----	:	-----	-
LpMDHk4	:	-----	:	-----	:	-----	-
LpMDHk5	:	-----	:	-----	:	-----	-
LpMDHk6	:	-----	:	-----	:	-----	-
LpMDHk7	:	-----	:	-----	:	-----	-
LpMDHk8	:	-----	:	-----	:	-----	-
LpMDHk9	:	-----	:	-----	:	-----	-
LpMDHk10	:	-----	:	-----	:	-----	-
LpMDHk11	:	-----	:	-----	:	-----	-
LpMDHk12	:	-----	:	-----	:	-----	-
LpMDHk13	:	-----	:	-----	:	-----	-
LpMDHk14	:	-----	:	-----	:	-----	-
LpMDHk15	:	-----	:	-----	:	-----	-
LpMDHk16	:	-----	:	-----	:	-----	-
LpMDHk17	:	-----	:	-----	:	-----	-
LpMDHk18	:	-----	:	-----	:	-----	-
LpMDHk19	:	-----	:	-----	:	-----	-
LpMDHk20	:	-----	:	-----	:	-----	-
LpMDHk21	:	-----	:	-----	:	-----	-
LpMDHk22	:	-----	:	-----	:	-----	-
LpMDHk23	:	-----	:	-----	:	-----	-
LpMDHk24	:	-----	:	-----	:	-----	-
LpMDHk25	:	-----	:	-----	:	-----	-
LpMDHk26	:	-----	:	-----	:	-----	-
LpMDHk27	:	-----	:	-----	:	-----	-
LpMDHk28	:	-----	:	-----	:	-----	-
LpMDHk29	:	-----	:	-----	:	-----	-
LpMDHk30	:	-----	:	-----	:	-----	-
LpMDHk31	:	-----	:	-----	:	-----	-
LpMDHk32	:	-----	:	-----	:	-----	-
LpMDHk33	:	-----	:	-----	:	-----	-
LpMDHk34	:	-----	:	-----	:	-----	-
LpMDHk35	:	-----	:	-----	:	-----	-
LpMDHk36	:	-----	:	-----	:	-----	-
LpMDHk37	:	-----	:	-----	:	-----	-
LpMDHk38	:	-----	:	-----	:	-----	-
LpMDHk39	:	-----	:	-----	:	-----	-
LpMDHk40	:	-----	:	-----	:	-----	-
LpMDHk41	:	-----	:	-----	:	-----	-
LpMDHk42	:	-----	:	-----	:	-----	-
LpMDHk43	:	-----	:	-----	:	-----	-
LpMDHk44	:	-----	:	-----	:	-----	-
LpMDHk45	:	-----	:	-----	:	-----	-
LpMDHk46	:	-----	:	-----	:	-----	-
LpMDHk47	:	-----	:	-----	:	-----	-
LpMDHk48	:	-----	:	-----	:	-----	-
LpMDHk49	:	-----	:	-----	:	-----	-
LpMDHk50	:	-----	:	-----	:	-----	-
LpMDHk51	:	-----	:	-----	:	-----	-
LpMDHk52	:	-----	:	-----	:	-----	-
LpMDHk53	:	-----	:	-----	:	-----	-
LpMDHk54	:	-----	:	-----	:	-----	-
LpMDHk55	:	-----	:	-----	:	-----	-
LpMDHk56	:	-----	:	-----	:	-----	-
LpMDHk57	:	-----	:	-----	:	-----	-
LpMDHk58	:	-----	:	-----	:	-----	-
LpMDHk59	:	-----	:	-----	:	-----	-
LpMDHk60	:	-----	:	-----	:	-----	-
LpMDHk61	:	-----	:	-----	:	-----	-
LpMDHk62	:	-----	:	-----	:	-----	-
LpMDHk63	:	-----	:	-----	:	-----	-
LpMDHk64	:	-----	:	-----	:	-----	-
LpMDHk65	:	CTGACAAAGAGGATACAGAACGCTGGGACAGAGGTTGGTGGAGGCGAA				-----	634
LpMDHk66	:	CTGACAAAGAGGATACAGAACGCTGGGACAGAGGCGCTGGAGGCGAAGGCTGGTCTGGC				-----	534

FIGURE 37 (cont.)

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	*	1040	*	1060	*	1080	
LpMDHk1	:	-----	:	-----	:	-----	-
LpMDHk2	:	-----	:	-----	:	-----	-
LpMDHk3	:	-----	:	-----	:	-----	-
LpMDHk4	:	-----	:	-----	:	-----	-
LpMDHk5	:	-----	:	-----	:	-----	-
LpMDHk6	:	-----	:	-----	:	-----	-
LpMDHk7	:	-----	:	-----	:	-----	-
LpMDHk8	:	-----	:	-----	:	-----	-
LpMDHk9	:	-----	:	-----	:	-----	-
LpMDHk10	:	-----	:	-----	:	-----	-
LpMDHk11	:	-----	:	-----	:	-----	-
LpMDHk12	:	-----	:	-----	:	-----	-
LpMDHk13	:	-----	:	-----	:	-----	-
LpMDHk14	:	-----	:	-----	:	-----	-
LpMDHk15	:	-----	:	-----	:	-----	-
LpMDHk16	:	-----	:	-----	:	-----	-
LpMDHk17	:	-----	:	-----	:	-----	-
LpMDHk18	:	-----	:	-----	:	-----	-
LpMDHk19	:	-----	:	-----	:	-----	-
LpMDHk20	:	-----	:	-----	:	-----	-
LpMDHk21	:	-----	:	-----	:	-----	-
LpMDHk22	:	-----	:	-----	:	-----	-
LpMDHk23	:	-----	:	-----	:	-----	-
LpMDHk24	:	-----	:	-----	:	-----	-
LpMDHk25	:	-----	:	-----	:	-----	-
LpMDHk26	:	-----	:	-----	:	-----	-
LpMDHk27	:	-----	:	-----	:	-----	-
LpMDHk28	:	-----	:	-----	:	-----	-
LpMDHk29	:	-----	:	-----	:	-----	-
LpMDHk30	:	-----	:	-----	:	-----	-
LpMDHk31	:	-----	:	-----	:	-----	-
LpMDHk32	:	-----	:	-----	:	-----	-
LpMDHk33	:	-----	:	-----	:	-----	-
LpMDHk34	:	-----	:	-----	:	-----	-
LpMDHk35	:	-----	:	-----	:	-----	-
LpMDHk36	:	-----	:	-----	:	-----	-
LpMDHk37	:	-----	:	-----	:	-----	-
LpMDHk38	:	-----	:	-----	:	-----	-
LpMDHk39	:	-----	:	-----	:	-----	-
LpMDHk40	:	-----	:	-----	:	-----	-
LpMDHk41	:	-----	:	-----	:	-----	-
LpMDHk42	:	-----	:	-----	:	-----	-
LpMDHk43	:	-----	:	-----	:	-----	-
LpMDHk44	:	-----	:	-----	:	-----	-
LpMDHk45	:	-----	:	-----	:	-----	-
LpMDHk46	:	-----	:	-----	:	-----	-
LpMDHk47	:	-----	:	-----	:	-----	-
LpMDHk48	:	-----	:	-----	:	-----	-
LpMDHk49	:	-----	:	-----	:	-----	-
LpMDHk50	:	-----	:	-----	:	-----	-
LpMDHk51	:	-----	:	-----	:	-----	-
LpMDHk52	:	-----	:	-----	:	-----	-
LpMDHk53	:	-----	:	-----	:	-----	-
LpMDHk54	:	-----	:	-----	:	-----	-
LpMDHk55	:	-----	:	-----	:	-----	-
LpMDHk56	:	-----	:	-----	:	-----	-
LpMDHk57	:	-----	:	-----	:	-----	-
LpMDHk58	:	-----	:	-----	:	-----	-
LpMDHk59	:	-----	:	-----	:	-----	-
LpMDHk60	:	-----	:	-----	:	-----	-
LpMDHk61	:	-----	:	-----	:	-----	-
LpMDHk62	:	-----	:	-----	:	-----	-
LpMDHk63	:	-----	:	-----	:	-----	-
LpMDHk64	:	-----	:	-----	:	-----	-
LpMDHk65	:	-----	:	-----	:	-----	-
LpMDHk66	:	TCTGCTACTCTGTCCATGGCTTATGCCGCTGCCAGATTTGTTGAGTCATCGCTCCGCGCA	:		:		594

FIGURE 37 (cont.)

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	*	1100	*	1120	*	1140	
LpMDHk1	:	-----	:	-----	:	-----	:
LpMDHk2	:	-----	:	-----	:	-----	:
LpMDHk3	:	-----	:	-----	:	-----	:
LpMDHk4	:	-----	:	-----	:	-----	:
LpMDHk5	:	-----	:	-----	:	-----	:
LpMDHk6	:	-----	:	-----	:	-----	:
LpMDHk7	:	-----	:	-----	:	-----	:
LpMDHk8	:	-----	:	-----	:	-----	:
LpMDHk9	:	-----	:	-----	:	-----	:
LpMDHk10	:	-----	:	-----	:	-----	:
LpMDHk11	:	-----	:	-----	:	-----	:
LpMDHk12	:	-----	:	-----	:	-----	:
LpMDHk13	:	-----	:	-----	:	-----	:
LpMDHk14	:	-----	:	-----	:	-----	:
LpMDHk15	:	-----	:	-----	:	-----	:
LpMDHk16	:	-----	:	-----	:	-----	:
LpMDHk17	:	-----	:	-----	:	-----	:
LpMDHk18	:	-----	:	-----	:	-----	:
LpMDHk19	:	-----	:	-----	:	-----	:
LpMDHk20	:	-----	:	-----	:	-----	:
LpMDHk21	:	-----	:	-----	:	-----	:
LpMDHk22	:	-----	:	-----	:	-----	:
LpMDHk23	:	-----	:	-----	:	-----	:
LpMDHk24	:	-----	:	-----	:	-----	:
LpMDHk25	:	-----	:	-----	:	-----	:
LpMDHk26	:	-----	:	-----	:	-----	:
LpMDHk27	:	-----	:	-----	:	-----	:
LpMDHk28	:	-----	:	-----	:	-----	:
LpMDHk29	:	-----	:	-----	:	-----	:
LpMDHk30	:	-----	:	-----	:	-----	:
LpMDHk31	:	-----	:	-----	:	-----	:
LpMDHk32	:	-----	:	-----	:	-----	:
LpMDHk33	:	-----	:	-----	:	-----	:
LpMDHk34	:	-----	:	-----	:	-----	:
LpMDHk35	:	-----	:	-----	:	-----	:
LpMDHk36	:	-----	:	-----	:	-----	:
LpMDHk37	:	-----	:	-----	:	-----	:
LpMDHk38	:	-----	:	-----	:	-----	:
LpMDHk39	:	-----	:	-----	:	-----	:
LpMDHk40	:	-----	:	-----	:	-----	:
LpMDHk41	:	-----	:	-----	:	-----	:
LpMDHk42	:	-----	:	-----	:	-----	:
LpMDHk43	:	-----	:	-----	:	-----	:
LpMDHk44	:	-----	:	-----	:	-----	:
LpMDHk45	:	-----	:	-----	:	-----	:
LpMDHk46	:	-----	:	-----	:	-----	:
LpMDHk47	:	-----	:	-----	:	-----	:
LpMDHk48	:	-----	:	-----	:	-----	:
LpMDHk49	:	-----	:	-----	:	-----	:
LpMDHk50	:	-----	:	-----	:	-----	:
LpMDHk51	:	-----	:	-----	:	-----	:
LpMDHk52	:	-----	:	-----	:	-----	:
LpMDHk53	:	-----	:	-----	:	-----	:
LpMDHk54	:	-----	:	-----	:	-----	:
LpMDHk55	:	-----	:	-----	:	-----	:
LpMDHk56	:	-----	:	-----	:	-----	:
LpMDHk57	:	-----	:	-----	:	-----	:
LpMDHk58	:	-----	:	-----	:	-----	:
LpMDHk59	:	-----	:	-----	:	-----	:
LpMDHk60	:	-----	:	-----	:	-----	:
LpMDHk61	:	-----	:	-----	:	-----	:
LpMDHk62	:	-----	:	-----	:	-----	:
LpMDHk63	:	-----	:	-----	:	-----	:
LpMDHk64	:	-----	:	-----	:	-----	:
LpMDHk65	:	-----	:	-----	:	-----	:
LpMDHk66	:	ATGGCTGGTGATCCAGATGTTACGAGTGCACGTATGTTTCAGTCTGAGTTAACAGAGCTT					: 654

FIGURE 37 (cont.)

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	*	1160	*	1180	*	1200	
LpMDHk1	:	-----	-----	-----	-----	-----	-
LpMDHk2	:	-----	-----	-----	-----	-----	-
LpMDHk3	:	-----	-----	-----	-----	-----	-
LpMDHk4	:	-----	-----	-----	-----	-----	-
LpMDHk5	:	-----	-----	-----	-----	-----	-
LpMDHk6	:	-----	-----	-----	-----	-----	-
LpMDHk7	:	-----	-----	-----	-----	-----	-
LpMDHk8	:	-----	-----	-----	-----	-----	-
LpMDHk9	:	-----	-----	-----	-----	-----	-
LpMDHk10	:	-----	-----	-----	-----	-----	-
LpMDHk11	:	-----	-----	-----	-----	-----	-
LpMDHk12	:	-----	-----	-----	-----	-----	-
LpMDHk13	:	-----	-----	-----	-----	-----	-
LpMDHk14	:	-----	-----	-----	-----	-----	-
LpMDHk15	:	-----	-----	-----	-----	-----	-
LpMDHk16	:	-----	-----	-----	-----	-----	-
LpMDHk17	:	-----	-----	-----	-----	-----	-
LpMDHk18	:	-----	-----	-----	-----	-----	-
LpMDHk19	:	-----	-----	-----	-----	-----	-
LpMDHk20	:	-----	-----	-----	-----	-----	-
LpMDHk21	:	-----	-----	-----	-----	-----	-
LpMDHk22	:	-----	-----	-----	-----	-----	-
LpMDHk23	:	-----	-----	-----	-----	-----	-
LpMDHk24	:	-----	-----	-----	-----	-----	-
LpMDHk25	:	-----	-----	-----	-----	-----	-
LpMDHk26	:	-----	-----	-----	-----	-----	-
LpMDHk27	:	-----	-----	-----	-----	-----	-
LpMDHk28	:	-----	-----	-----	-----	-----	-
LpMDHk29	:	-----	-----	-----	-----	-----	-
LpMDHk30	:	-----	-----	-----	-----	-----	-
LpMDHk31	:	-----	-----	-----	-----	-----	-
LpMDHk32	:	-----	-----	-----	-----	-----	-
LpMDHk33	:	-----	-----	-----	-----	-----	-
LpMDHk34	:	-----	-----	-----	-----	-----	-
LpMDHk35	:	-----	-----	-----	-----	-----	-
LpMDHk36	:	-----	-----	-----	-----	-----	-
LpMDHk37	:	-----	-----	-----	-----	-----	-
LpMDHk38	:	-----	-----	-----	-----	-----	-
LpMDHk39	:	-----	-----	-----	-----	-----	-
LpMDHk40	:	-----	-----	-----	-----	-----	-
LpMDHk41	:	-----	-----	-----	-----	-----	-
LpMDHk42	:	-----	-----	-----	-----	-----	-
LpMDHk43	:	-----	-----	-----	-----	-----	-
LpMDHk44	:	-----	-----	-----	-----	-----	-
LpMDHk45	:	-----	-----	-----	-----	-----	-
LpMDHk46	:	-----	-----	-----	-----	-----	-
LpMDHk47	:	-----	-----	-----	-----	-----	-
LpMDHk48	:	-----	-----	-----	-----	-----	-
LpMDHk49	:	-----	-----	-----	-----	-----	-
LpMDHk50	:	-----	-----	-----	-----	-----	-
LpMDHk51	:	-----	-----	-----	-----	-----	-
LpMDHk52	:	-----	-----	-----	-----	-----	-
LpMDHk53	:	-----	-----	-----	-----	-----	-
LpMDHk54	:	-----	-----	-----	-----	-----	-
LpMDHk55	:	-----	-----	-----	-----	-----	-
LpMDHk56	:	-----	-----	-----	-----	-----	-
LpMDHk57	:	-----	-----	-----	-----	-----	-
LpMDHk58	:	-----	-----	-----	-----	-----	-
LpMDHk59	:	-----	-----	-----	-----	-----	-
LpMDHk60	:	-----	-----	-----	-----	-----	-
LpMDHk61	:	-----	-----	-----	-----	-----	-
LpMDHk62	:	-----	-----	-----	-----	-----	-
LpMDHk63	:	-----	-----	-----	-----	-----	-
LpMDHk64	:	-----	-----	-----	-----	-----	-
LpMDHk65	:	-----	-----	-----	-----	-----	-
LpMDHk66	:	CCATTCTTCGCGTCCAGAGTTAAGCTTGGGAAGGACGGNGTTGAGTCCATCATTTCCTCC					714

FIGURE 37 (cont.)

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	*	1220	*	1240	*	1260	
LpMDHk1	:	-----	:	-----	:	-----	:
LpMDHk2	:	-----	:	-----	:	-----	:
LpMDHk3	:	-----	:	-----	:	-----	:
LpMDHk4	:	-----	:	-----	:	-----	:
LpMDHk5	:	-----	:	-----	:	-----	:
LpMDHk6	:	-----	:	-----	:	-----	:
LpMDHk7	:	-----	:	-----	:	-----	:
LpMDHk8	:	-----	:	-----	:	-----	:
LpMDHk9	:	-----	:	-----	:	-----	:
LpMDHk10	:	-----	:	-----	:	-----	:
LpMDHk11	:	-----	:	-----	:	-----	:
LpMDHk12	:	-----	:	-----	:	-----	:
LpMDHk13	:	-----	:	-----	:	-----	:
LpMDHk14	:	-----	:	-----	:	-----	:
LpMDHk15	:	-----	:	-----	:	-----	:
LpMDHk16	:	-----	:	-----	:	-----	:
LpMDHk17	:	-----	:	-----	:	-----	:
LpMDHk18	:	-----	:	-----	:	-----	:
LpMDHk19	:	-----	:	-----	:	-----	:
LpMDHk20	:	-----	:	-----	:	-----	:
LpMDHk21	:	-----	:	-----	:	-----	:
LpMDHk22	:	-----	:	-----	:	-----	:
LpMDHk23	:	-----	:	-----	:	-----	:
LpMDHk24	:	-----	:	-----	:	-----	:
LpMDHk25	:	-----	:	-----	:	-----	:
LpMDHk26	:	-----	:	-----	:	-----	:
LpMDHk27	:	-----	:	-----	:	-----	:
LpMDHk28	:	-----	:	-----	:	-----	:
LpMDHk29	:	-----	:	-----	:	-----	:
LpMDHk30	:	-----	:	-----	:	-----	:
LpMDHk31	:	-----	:	-----	:	-----	:
LpMDHk32	:	-----	:	-----	:	-----	:
LpMDHk33	:	-----	:	-----	:	-----	:
LpMDHk34	:	-----	:	-----	:	-----	:
LpMDHk35	:	-----	:	-----	:	-----	:
LpMDHk36	:	-----	:	-----	:	-----	:
LpMDHk37	:	-----	:	-----	:	-----	:
LpMDHk38	:	-----	:	-----	:	-----	:
LpMDHk39	:	-----	:	-----	:	-----	:
LpMDHk40	:	-----	:	-----	:	-----	:
LpMDHk41	:	-----	:	-----	:	-----	:
LpMDHk42	:	-----	:	-----	:	-----	:
LpMDHk43	:	-----	:	-----	:	-----	:
LpMDHk44	:	-----	:	-----	:	-----	:
LpMDHk45	:	-----	:	-----	:	-----	:
LpMDHk46	:	-----	:	-----	:	-----	:
LpMDHk47	:	-----	:	-----	:	-----	:
LpMDHk48	:	-----	:	-----	:	-----	:
LpMDHk49	:	-----	:	-----	:	-----	:
LpMDHk50	:	-----	:	-----	:	-----	:
LpMDHk51	:	-----	:	-----	:	-----	:
LpMDHk52	:	-----	:	-----	:	-----	:
LpMDHk53	:	-----	:	-----	:	-----	:
LpMDHk54	:	-----	:	-----	:	-----	:
LpMDHk55	:	-----	:	-----	:	-----	:
LpMDHk56	:	-----	:	-----	:	-----	:
LpMDHk57	:	-----	:	-----	:	-----	:
LpMDHk58	:	-----	:	-----	:	-----	:
LpMDHk59	:	-----	:	-----	:	-----	:
LpMDHk60	:	-----	:	-----	:	-----	:
LpMDHk61	:	-----	:	-----	:	-----	:
LpMDHk62	:	-----	:	-----	:	-----	:
LpMDHk63	:	-----	:	-----	:	-----	:
LpMDHk64	:	-----	:	-----	:	-----	:
LpMDHk65	:	-----	:	-----	:	-----	:
LpMDHk66	:	GACCTGGAGGGAGTGACGGAGTACGAGGCCAAGGCGCTTGANGCATTGAAGGCTGAGCTG					: 774

FIGURE 37 (cont.)

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LpMDHk1	:	---	:	-
LpMDHk2	:	---	:	-
LpMDHk3	:	---	:	-
LpMDHk4	:	---	:	-
LpMDHk5	:	---	:	-
LpMDHk6	:	---	:	-
LpMDHk7	:	---	:	-
LpMDHk8	:	---	:	-
LpMDHk9	:	---	:	-
LpMDHk10	:	---	:	-
LpMDHk11	:	---	:	-
LpMDHk12	:	---	:	-
LpMDHk13	:	---	:	-
LpMDHk14	:	---	:	-
LpMDHk15	:	---	:	-
LpMDHk16	:	---	:	-
LpMDHk17	:	---	:	-
LpMDHk18	:	---	:	-
LpMDHk19	:	---	:	-
LpMDHk20	:	---	:	-
LpMDHk21	:	---	:	-
LpMDHk22	:	---	:	-
LpMDHk23	:	---	:	-
LpMDHk24	:	---	:	-
LpMDHk25	:	---	:	-
LpMDHk26	:	---	:	-
LpMDHk27	:	---	:	-
LpMDHk28	:	---	:	-
LpMDHk29	:	---	:	-
LpMDHk30	:	---	:	-
LpMDHk31	:	---	:	-
LpMDHk32	:	---	:	-
LpMDHk33	:	---	:	-
LpMDHk34	:	---	:	-
LpMDHk35	:	---	:	-
LpMDHk36	:	---	:	-
LpMDHk37	:	---	:	-
LpMDHk38	:	---	:	-
LpMDHk39	:	---	:	-
LpMDHk40	:	---	:	-
LpMDHk41	:	---	:	-
LpMDHk42	:	---	:	-
LpMDHk43	:	---	:	-
LpMDHk44	:	---	:	-
LpMDHk45	:	---	:	-
LpMDHk46	:	---	:	-
LpMDHk47	:	---	:	-
LpMDHk48	:	---	:	-
LpMDHk49	:	---	:	-
LpMDHk50	:	---	:	-
LpMDHk51	:	---	:	-
LpMDHk52	:	---	:	-
LpMDHk53	:	---	:	-
LpMDHk54	:	---	:	-
LpMDHk55	:	---	:	-
LpMDHk56	:	---	:	-
LpMDHk57	:	---	:	-
LpMDHk58	:	---	:	-
LpMDHk59	:	---	:	-
LpMDHk60	:	---	:	-
LpMDHk61	:	---	:	-
LpMDHk62	:	---	:	-
LpMDHk63	:	---	:	-
LpMDHk64	:	---	:	-
LpMDHk65	:	---	:	-
LpMDHk66	:	AAG	:	777

FIGURE 37 (cont.)

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LpMDH1 : G N A A C A G N N G C G N C T T T T C C T N C A N T G T T G C C G T G C A A T C G C T G A N A A G T A T C C A G A A A : 60

LpMDH1 : T C A T A T A C G A G G A A G T A A T T A T T G A T A A C T G C T G T A T G A C G C T C G T G A A G A A C C C T G G T A : 120

LpMDH1 : C G T T T G A T G T A T T A G T G A T G C C A A A T C T A T A T G G C G A C A T T A T T A G T G A T C T A T G T G C T G : 180

LpMDH1 : G T T T G A T C G G A G G C T T G G G C C T A A C T C C C A G C T G C A A C A T T G G T G A A G G T G G C A T T T G T C : 240

LpMDH1 : T T G C A G A G G C T G T C C A T G G C T C T G C A C C T G A T A T A T C T G G C A A G A A C C T G G C A A C C C A A : 300

LpMDH1 : C T G C T C T T A T G C T G A G T G C T G T T A T G A T G T T G C G C C A C T T G C A A T T N A A C G A C C A A G C A N : 360

LpMDH1 : A A C G G A T C C A C A A T G C T A T C C T C C A G A C T A T C G N C G A G G G G A A G N A C A N A A C T G : 414

FIGURE 38

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LpMDH1 : KQXXLFXXCCRAIAXKYPEIIYEEVIIDNCCMTLVKNPGETFDVLVMPNLYGDIISDLCAG : 60

LpMDH1 : LIGGLGLTPSCNIGEGGICLAEAVHGSAPDISGKNLANPTALMLSAVMMLRHLQXNDQAX : 120

LpMDH1 : RIHNAILQTIXEGKXXT : 137

FIGURE 39

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LpMDHm : GNCACCNCCAGNNACAACCTCTGGTACCTCAATTGCTACTCCACACCTCACTACTTCTACC : 60
 * 20 * 40 * 60

LpMDHm : AATCCACTACACAGCTTCGAGCTACCCCGCCCCGCAATCCAACTACCTCTCCCTAGCA : 120
 * 80 * 100 * 120

LpMDHm : AATCTACAACATGAAGGCAGTCGTAGCTGGAGCCGCCGGTGGCATTGGACAGCCATTGTC : 180
 * 140 * 160 * 180

LpMDHm : CCTCCTCCTTAAGACCTGCCCGCTCGTCACTGAGCTCGCCCTATACGATGTCGTCAACGC : 240
 * 200 * 220 * 240

LpMDHm : CGTCGGTGTGCGGACTGACCTCTCCACATCTCCTCGCCCGGAAAGTAACCGGCTACCT : 300
 * 260 * 280 * 300

LpMDHm : GCCGGCAAATGACGGTATGCAGCAGGCTCTCACTGGCGCCGACATCGTGGTCATCCCCGC : 360
 * 320 * 340 * 360

LpMDHm : TGGTATTCCCCGCAAGCCCGGCATGACCCGTGACGACCTCTTCAAGATCAACGCCGGCAT : 420
 * 380 * 400 * 420

LpMDHm : TGTCCAGGGTCTCATCGAGGGTGTGCGCAAGCACTGCCCCAAGGCATACGTTCTCGTCAT : 480
 * 440 * 460 * 480

LpMDHm : CTCCAACCCCGTCAACTCGACTGTGCCCATCGCCGCCGAGGTGCTGAAGAAGGCCGGTGT : 540
 * 500 * 520 * 540

LpMDHm : CTTGACCCCCAAGAAGCTCTTCGGTGTCAACACCTCGATGTCGTCCGCGCCGAGACCTT : 600
 * 560 * 580 * 600

LpMDHm : CGTTGCCGAGATCACTGGCGAGAAGGACCCAGCGAAGTTGAACATNCCCGTA : 652
 * 620 * 640 *

FIGURE 40

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LpMDHm : * 20 * 40 * 60
 : XXPXTTLVPQLLLHTSLLLPIHYTASSYPAPAIQTTSP*QIYNMKAVVAGAAGGIGQPLS : 59

 * 80 * 100 * 120
LpMDHm : LLLKTCPLVTELALYDVVNAVGVATDLSHISPAKVTGYLPANDGMQQALTGADIVVIPA : 119

 * 140 * 160 * 180
LpMDHm : GIPRKPGMTRDDLFKINAGIVQGLIEGVAKHCPKAYVLVISNPVNSTVPIAAEVLKKAGV : 179

 * 200 *
LpMDHm : FDPKKLFGVTTLDVVRAETFVAEITGEKDPAKLNXPV : 216

FIGURE 41

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LpPEPCa : GNGTACACGAAATAGAATCAACGGAAAGCANGAAGTGATGATTGGGTATCAGCATTCTGG : 60
 * 20 * 40 * 60

LpPEPCa : GAAGGATGCTGGCCGTTTCTCTGCTGGTTGGCACTTGTACAAAGCTCAAGAGGAGCTTAT : 120
 * 80 * 100 * 120

LpPEPCa : TAAGGTTGCGGAGACGTTTGGGGTTAAGNTGACTATGTTTCATGGACGAGGGGGTACTGT : 180
 * 140 * 160 * 180

LpPEPCa : TGGAAGAGGTGGCGGCCCTACCCATCTTGCTATACTGTACAACTCCAGATACTGTCCA : 240
 * 200 * 220 * 240

LpPEPCa : TGGATCACTTCGGGTAAGTGTCAAGGTGAAGTCATTGAGCAGTCCTTCGGAGAGGAGCA : 300
 * 260 * 280 * 300

LpPEPCa : TTTGTGTTTTAGAACGCTTCAACGTTTTACAGCTGCTACTCTTGAACATGGTATGCATCC : 360
 * 320 * 340 * 360

LpPEPCa : ACCAATCTCACCTAAACCAGAATGGCGTGCTTTGATGGATGAAATGGCTGTTGTTGCCAC : 420
 * 380 * 400 * 420

LpPEPCa : AGAGGAATACCGTTCCATTGTTTTCCAAGAACCAAGATTTGTTGAGTATTTCCGCCTTGC : 480
 * 440 * 460 * 480

LpPEPCa : AACACCAGAGCTCGAGTATGGTAGGATGAATATTGGAAGCAGGCCATCAAAACGTAAGCC : 540
 * 500 * 520 * 540

LpPEPCa : AAGCGGAGGAATCGAATCATTGCGTGCAATTCCTTGGATATTGCTTGGACACAGACTAG : 600
 * 560 * 580 * 600

LpPEPCa : ATTCCACCTGCCAGTGTGGCTTGNTTTTGGTGCGGCCTTCAAGCATGTCCTGCAAAAGGA : 660
 * 620 * 640 * 660

LpPEPCa : CATTCTGANTCTTCAAATCCTTCAGCAGATGTACAACGAGTGGCCGTTTAGGGTTACCAT : 720
 * 680 * 700 * 720

LpPEPCa : AAACCTGGTTGAGATGGTGTGTTTGCCAAGGGCGATCCAGGTATAGCAGCT : 769
 * 740 * 760

FIGURE 42

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LpPEPCa : XTRNRINGKXEVMIGYQHSGKDAGRFSAGWHLYKAQEELIKVAETFGVKXTMFHGRGGTV : 60

LpPEPCa : GRGGGPThLAiLSQPPDTVHGSLRVTVQGEVIEQSFGEELCFRTLQRFTAATLEHGMHP : 120

LpPEPCa : PISPKEWRALMDEMAVVATEEYRSIVFQEPRFVEYFRLATPELEYGRMNIGSRPSKRKP : 180

LpPEPCa : SGGIESLRAIPWIFAWTQTRFHLpVWLXFGAAFKHVLQKDIRXLQILQQMYNEWPFrvTI : 240

LpPEPCa : NLVEMVFAKGDPGIAA : 256

FIGURE 43

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LpPEPCb : GAAGAAGTTGCTGATGTTTAAAGNACATTTNTGTCCTTGCCAGAGCTCCAGCAGATTGTT : 60
 LpPEPCb : TTGGTGCTTACATCATCTCAATGGCAACTGCCCCATCTGATGTGCTTGCTGTTGAGCTTT : 120
 LpPEPCb : TGCAGCGGGAGTGCCATATAAAAAAGCCATTGAGAGTTGTTCCACTATTTGAAAAGCTTG : 180
 LpPEPCb : CAGATCTTGAANCAGCTCCAGCATCTGTTGCACGACTATTTTCAATAGACTGGTACATGA : 240
 LpPEPCb : ATAGAATCAATGGCAAGCAGGAGGTCATGATTGGATACTCAGACTCTGGGAAGGACGCTG : 300
 LpPEPCb : GGCGTCTCTCTGCAGCGTGGCAAATGTATAAAGCACAAGAAGATCTCATAAAGGTGGCAA : 360
 LpPEPCb : AGCAATATGGAGTAAAGTTAACAATGTTTTCATGGAAGAGGTGGAACGGTTGGCAGAGGAG : 420
 LpPEPCb : GTGGTCCCAGTCATCTTGCTATATTATCTCAACCACCAGACACGATACAAGGATCACTTC : 480
 LpPEPCb : GTGTAACAGTTCAAGGCGAGGTCATAGAGCACTCATTTGGAGAGGAACACTTGTGCTTCA : 540
 LpPEPCb : GAACTCTGCAACGTTTCACTGCAGCTACTCTTGAGCATGGAATGCATCCTCCAATTTTAC : 600
 LpPEPCb : CCAAGCCAGAATGGCGTGCTATAATGGATGAGATGGCTGTAGTGGCAACAAAAGAATATC : 660
 LpPEPCb : GATCAATTGTCTTCCAAGAACCACGTTTTGTGCAATACTTCCGCTCGGCAACACCTGAGA : 720
 LpPEPCb : CTGAATATGGTCGGATGAATATTGGTAGCCGGCCATCAAAGAGAAAGCCTAGTGGAGGCA : 780
 LpPEPCb : TAGAATCGCTCCGTGCAATTCCATGGATCTTTGCTTGGACACAGACAAGGTTTCATCTTC : 840
 LpPEPCb : CTGTATGGCTTGGATTGGTGCAGCGTTCAAACATATCATGCAGAAGGACATCAGGAATA : 900

FIGURE 44

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* 920 * 940 * 960
 LpPEPCb : TCCATACTCTGAAAGAAATGTACAATGAGTGGCCATTCTTTAGGGTCACCCTTGACTTGC : 960

* 980 * 1000 * 1020
 LpPEPCb : TTGAGATGGTTTTTGCCAAGGGAGATCCAGGAATTGCTGCTTTATATGACAAATTGCTTG : 1020

* 1040 * 1060 * 1080
 LpPEPCb : TGTCTGAAGATCTGCAGCCCTTTGGGGAGCAGCTGAGAAACAACCTTTGAAGAGACGAAAC : 1080

* 1100 * 1120 * 1140
 LpPEPCb : AGTTACTCCTTCAGGTTGCTGGCCACAAGGACGTTCTTGAAGGGGATCCTTACCTGAAGC : 1140

* 1160 * 1180 * 1200
 LpPEPCb : AGCGTCTGCGGTTGCGTGAGTCATACATCACAACATTGAATGTTTGCCAAGCCNACACCC : 1200

* 1220 * 1240 * 1260
 LpPEPCb : TGAAGCGGATAAGAGACCCCTAGCTTCGAGGTGACACCGCAGCAGGCACCTCTGTGCAAGG : 1260

* 1280 * 1300 * 1320
 LpPEPCb : AGTTCGCTGATGAGAAGGAGCCAGCTGAGCTGGTGCAACTGAACCGTGGGAGCGAGTACG : 1320

* 1340 * 1360 * 1380
 LpPEPCb : CCCCAGGCCTGGAGGACACCCTCATCCTTACCATGAAGGGTATTTGCTGTGGAATGCAAA : 1380

* 1400 * 1420 * 1440
 LpPEPCb : ACACAGGCTAGGCCAGTTTGCCTATTTGGAATAACTGTCATCCCGTCAGATGGGGCGTGA : 1440

* 1460 * 1480 * 1500
 LpPEPCb : ATATGTGTGTTCCCCAAATGCTAGTGAACCCTGGAGGCATTTTGGCCACTTACATGCCTT : 1500

* 1520 * 1540 * 1560
 LpPEPCb : TTGGTTATGGATGNACCTTTGATCTTAATGNCAAGGGTTGTTGAAGCCTGATCTAAATAAA : 1560

* 1580 * 1600 * 1620
 LpPEPCb : ATATGGAACAATGATATTCTGGTNGGATCTAATAATTGCTTGGCTCTGGCATCGNAATA : 1620

* 1640
 LpPEPCb : GNGATTTGGAGTNGTTTAAAC : 1640

FIGURE 44 (cont.)

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LpPEPCb : RSCXCFKXIXVLAELPADCFGAYIISMATAPSDVLAVELLQRECHIKKPLRVVPLFEKLA : 60
 LpPEPCb : DLEXAPASVARLFSIDWYMNRIKQEVMIQYSDSGKDAGRLSAAWQMYKAQEDLIKVAK : 120
 LpPEPCb : QYGVKLTMFHGRGGTVGRGGPSHLAILSQPPDTIQGSLRVTVQGEVIEHSFGEEHLCFR : 180
 LpPEPCb : TLQRFTAATLEHGMHPPISPKEWRAIMDEMAVVATKEYRSIVFQEPRFVEYFRSATPET : 240
 LpPEPCb : EYGRMNIGSRPSKRKPSGGIESLRAIPWIFAWTQTRFHLPVWLGFGAAFKHIMQKDIRNI : 300
 LpPEPCb : HTLKEMYNEWPFVRVTLDLLEMVFAKGDPIAALYDKLLVSEDLQPFGEQLRNNFEETKQ : 360
 LpPEPCb : LLLQVAGHKDVLEGGPYLKQRLRLRESYITTLNVCQAXTLKRIRDPSFEVTPQQAPLSKE : 420
 LpPEPCb : FADEKEPAELVQLNRGSEYAPGLEDTLILTMKGICCGMQNTG : 462

FIGURE 45

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		*	20	*	40	*	60	
LpPEPCb1 :	GAAGAAGTTGCTGATGTTTTAAGNACATTNTGTCTTGCAGAGCTCCCAGCAGATTGTT	:	60					
LpPEPCb2 :	-----	:	-					
LpPEPCb3 :	-----	:	-					
LpPEPCb4 :	-----	:	-					
LpPEPCb5 :	-----	:	-					
LpPEPCb6 :	-----	:	-					
		*	80	*	100	*	120	
LpPEPCb1 :	TTGGTGCTTACATCATCTCAATGGCAACTGCCCCATCTGATGTGCTTGCTGTTGAGCTTT	:	120					
LpPEPCb2 :	-----	:	-					
LpPEPCb3 :	-----	:	-					
LpPEPCb4 :	-----	:	-					
LpPEPCb5 :	-----	:	-					
LpPEPCb6 :	-----	:	-					
		*	140	*	160	*	180	
LpPEPCb1 :	TGCAGCGGGAGTGCCATATAAAAAAGCCATTGAGAGTTGTTCCACTATTTGAAAAGCTTG	:	180					
LpPEPCb2 :	-----	:	-					
LpPEPCb3 :	-----	:	-					
LpPEPCb4 :	-----	:	-					
LpPEPCb5 :	-----	:	-					
LpPEPCb6 :	-----	:	-					
		*	200	*	220	*	240	
LpPEPCb1 :	CAGATCTTGAANCAGCTCCAGCATCTGTTGCACGACTATTTTCAATAGACTGGTACATGA	:	240					
LpPEPCb2 :	-----	:	-					
LpPEPCb3 :	-----	:	-					
LpPEPCb4 :	-----	:	-					
LpPEPCb5 :	-----	:	-					
LpPEPCb6 :	-----	:	-					
		*	260	*	280	*	300	
LpPEPCb1 :	ATAGAATCAATGGCAAGCAGGAGGTCATGATTGGATACTCAGACTCTGGGAAGGACGCTG	:	300					
LpPEPCb2 :	-----	:	-					
LpPEPCb3 :	-----	:	-					
LpPEPCb4 :	-----	:	-					
LpPEPCb5 :	-----	:	-					
LpPEPCb6 :	-----	:	-					
		*	320	*	340	*	360	
LpPEPCb1 :	GGCGTCTCTCTGCAGCGTGGCAAATGTATAAAGCACAGAAGATCTCATAAAGGTGGCAA	:	360					
LpPEPCb2 :	-----GTATAAAGCACAGAAGATCTCATAAAGGTGGCAA	:	35					
LpPEPCb3 :	-----	:	-					
LpPEPCb4 :	-----	:	-					
LpPEPCb5 :	-----	:	-					
LpPEPCb6 :	-----	:	-					
		*	380	*	400	*	420	
LpPEPCb1 :	AGCAATATGGAGTAAAGTTAACAATGTTTCATGGAAGAGGTGGAACGGTTGGCAGAGGAG	:	420					
LpPEPCb2 :	AGCAATATGGAGTAAAGTTAACAATGTTTCATGGAAGAGGTGGAACGGTTGGCAGAGGAG	:	95					
LpPEPCb3 :	-----AATGTTT-TTGGAAGAGGTGGAACGGTTGGCAGAGGAG	:	37					
LpPEPCb4 :	-----GCATAGGAG	:	9					
LpPEPCb5 :	-----	:	-					
LpPEPCb6 :	-----	:	-					

FIGURE 46

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		*	440	*	460	*	480	
LpPEPCb1 :	GTGGTCCCAGTCATCTTGCTATATTATCTCAACCACCAGACACGATACAAGGATCACTTC							: 480
LpPEPCb2 :	GTGGTCCCAGTCATCTTGCTATATTATCTCAACCACCAGACACGATACAAGGATCACTTC							: 155
LpPEPCb3 :	GTGGTCCCAGTCATCTTGCTATATTATCTCAACCACAGACACGATACAAGGATCACTTC							: 97
LpPEPCb4 :	GTGGTCCCAGTCATCTTGCTATATTATCTCAACCACCAGACACGATACAAGGATCACTTC							: 69
LpPEPCb5 :	-----							: -
LpPEPCb6 :	-----							: -
		*	500	*	520	*	540	
LpPEPCb1 :	GTGTAACAGTTCAAGGCGAGGTCATAGAGCACTCATTTGGAGAGGAACACTTGTGCTTCA							: 540
LpPEPCb2 :	GTGTAACAGTTCAAGGCGAGGTCATAGAGCACTCATTTGGAGAGGAACACTTGTGCTTCA							: 215
LpPEPCb3 :	GTGTAACAGTTCAAGGCGAGGTCATAGAGCACTCATTTGGAGAGGAACACTTGTGCTTCA							: 157
LpPEPCb4 :	GTGTAACAGTTCAAGGCGAGGTCATAGAGCACTCATTTGGAGAGGAACACTTGTGCTTCA							: 129
LpPEPCb5 :	-----							: -
LpPEPCb6 :	-----							: -
		*	560	*	580	*	600	
LpPEPCb1 :	GAACCTCTGCAACGTTTCACTGCAGCTACTCTTGAGCATGGAATGCATCCTCCAATTTCCG							: 600
LpPEPCb2 :	GAACCTCTGCAACGTTTCACTGCAGCTACTCTTGAGCATGGAATGCATCCTCCAATTTCC							: 275
LpPEPCb3 :	GAACCTCTGCAACGTTTCACTGCAGCTACTCTTGAGCATGGAATGCATCCTCCAATTTCC							: 217
LpPEPCb4 :	GAACCTCTGCAACGTTTCACTGCAGCTACTCTTGAGCATGGAATGCATCCTCCAATTTCC							: 189
LpPEPCb5 :	-----							: -
LpPEPCb6 :	-----							: -
		*	620	*	640	*	660	
LpPEPCb1 :	CCAAGCCAGAATGGCGTGTCTATAATGGATGAGATGGCTGTAGTGGCAACAAAAGAAATATC							: 660
LpPEPCb2 :	CCAAGCCAGAATGGCGTGTCTATAATGGATGAGATGGCTGTAGTGGCAACAAAAGAAATATC							: 335
LpPEPCb3 :	CCAAGCCAGAATGGCGTGTCTATAATGGATGAGATGGCTGTAGTGGCAACAAAAGAAATATC							: 277
LpPEPCb4 :	CCAAGCCAGAATGGCGTGTCTATAATGGATGAGATGGCTGTAGTGGCAACAAAAGAAATATC							: 249
LpPEPCb5 :	-----							: -
LpPEPCb6 :	-----							: -
		*	680	*	700	*	720	
LpPEPCb1 :	GATCAATTGTCTTCCAAGAACCACGTTTGTGCGAATACTTCCGCTCGGCAACACCTGAGA							: 697
LpPEPCb2 :	GATCAATTGTCTTCCAAGAACCACGTTTGTGCGAATACTTCCGCTCGGCAACACCTGAGA							: 395
LpPEPCb3 :	GATCAATTGTCTTCCAAGAACCACGTTTGTGCGAATACTTCCGCTCGGCAACACCTGAGA							: 337
LpPEPCb4 :	GATCAATTGTCTTCCAAGAACCACGTTTGTGCGAATACTTCCGCTCGGCAACACCTGAGA							: 309
LpPEPCb5 :	-----							: -
LpPEPCb6 :	-----							: -
		*	740	*	760	*	780	
LpPEPCb1 :	-----							: -
LpPEPCb2 :	CTGAATATGGTCGGATGAATATTGGTAGCCGGCCATCAAAGAGAAAGCCTAGTGGAGGCA							: 455
LpPEPCb3 :	CTGAATATGGTCGGATGAATATTGGTAGCCGGCCATCAAAGAGAAAGCCTAGTGGAGGCA							: 397
LpPEPCb4 :	CTGAATATGGTCGGATGAATATTGGTAGCCGGCCATCAAAGAGAAAGCCTAGTGGAGGCA							: 369
LpPEPCb5 :	-----							: -
LpPEPCb6 :	-----							: -
		*	800	*	820	*	840	
LpPEPCb1 :	-----							: -
LpPEPCb2 :	TAGAATCGCTCCGTGCAATTCCATGGATCTTTGCTTGGACACAGACAAGGTTTCATCTTC							: 515
LpPEPCb3 :	TAGAATCGCTCCGTGCAATTCCATGGATCTTTGCTTGGACACAGACAAGGTTTCATCTTC							: 457
LpPEPCb4 :	TAGAATCGCTCCGTGCAATTCCATGGATCTTTGCTTGGACACAGACAAGGTTTCATCTTC							: 429
LpPEPCb5 :	-----							: -
LpPEPCb6 :	-----							: -

FIGURE 46 (cont.)

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	*	860	*	880	*	900	
LpPEPCb1 :	-----		-----		-----		-
LpPEPCb2 :	CTGTATGGCTTGGATT	TGGTGCAGCGTTCAAACATATCATGCAGAAGGACATCAGGAATA					: 575
LpPEPCb3 :	CTGTATGGCTTGGATT	TGGTGCAGCGTTCAAACATATCATGCAGAAGGACATCAGGAATA					: 517
LpPEPCb4 :	CTGTATGGCTTGGATT	TGGTGCAGCGTTCAAACATATCATGCAGAAGGACATCAGGAATA					: 489
LpPEPCb5 :	-----		-----		-----		-
LpPEPCb6 :	-----		-----		-----		-
	*	920	*	940	*	960	
LpPEPCb1 :	-----		-----		-----		-
LpPEPCb2 :	TCCATACTCTGAAAGAAATGTACAATGAGTGGCCATTCTTTAGGGTCACCCCTTGACTTGC						: 635
LpPEPCb3 :	TCCATACTCTGAAAGAAATGTACAATGAGTGGCCATTCTTTAGGGTCACCCCTTGACTTGC						: 577
LpPEPCb4 :	TCCATACTCTGAAAGAAATGTACAATGAGTGGCCATTCTTTAGGGTCACCCCTTGACTTGC						: 549
LpPEPCb5 :	-----		-----		-----		-
LpPEPCb6 :	-----		-----		-----		-
	*	980	*	1000	*	1020	
LpPEPCb1 :	-----		-----		-----		-
LpPEPCb2 :	TTGAGATGGTTTTTGGCCAAGGGAGATCCAGGAATTGCTGCTTTATATGACAAATTGCTTG						: 695
LpPEPCb3 :	TTGAGATGGTTTTTGGCCAAGGGAGATCCAGGAATTGCTGCTTTATATGACAAATTGCTTG						: 637
LpPEPCb4 :	TTGAGATGGTTTTTGGCCAAGGGAGATCCAGGAATTGCTGCTTTATATGACAAATTGCTTG						: 609
LpPEPCb5 :	-----GGTTTTTG-CNAGGGAGATCC-GG-ATTGCTGCTTTATATGACAAATTGCTTG						: 50
LpPEPCb6 :	-----		-----		-----		-
	*	1040	*	1060	*	1080	
LpPEPCb1 :	-----		-----		-----		-
LpPEPCb2 :	TGCTCTGAAGATCTGCAGCCCTTTGGGGAGCAGCTGAGAAAACAACCTTTGAAGAGACGAAAC						: 755
LpPEPCb3 :	TGCTCTGAAGATCTGCAGCCCTTTGGGGAGCAGCTGAGAAAACAACCTTTGAAGAGACGAAAC						: 697
LpPEPCb4 :	TGCTCTGAAGATCTGCAGCCCTTTGGGGAGCAGCTGAGAAAACAACCTTTGAAGAGACGAAAC						: 669
LpPEPCb5 :	TGCTCTGAAGATCTGCAGCCCTTTGGGGAGCAGCTGAGAAAACAACCTTTGAAGAGACGAAAC						: 110
LpPEPCb6 :	-----		-----		-----		-
	*	1100	*	1120	*	1140	
LpPEPCb1 :	-----		-----		-----		-
LpPEPCb2 :	AGTTACTCCTTTAAGGTTGCTTGNCCACAAGG						: 785
LpPEPCb3 :	AGTTACTCCTTCAGGTTGCTTGCCACAAGGACGTTCTTGAAGGGGATCCTTACCTGAAGC						: 757
LpPEPCb4 :	AGTTACTCCTTCAGGTTGCTTGCCACAAGGACGTTCTTGAAGGGGATCCTTACCTGAAGC						: 729
LpPEPCb5 :	AGTTACTCCTTCAGGTTGCTTGCCACAAGGACGTTCTTGAAGGGGATCCTTACCTGAAGC						: 170
LpPEPCb6 :	-----GGACGTTCTTGAAGGGGATCCTTACCTGAAGC						: 32
	*	1160	*	1180	*	1200	
LpPEPCb1 :	-----		-----		-----		-
LpPEPCb2 :	-----		-----		-----		-
LpPEPCb3 :	AGCGTCTGCGGTTGCGTGAGTCATAC						: 783
LpPEPCb4 :	AGCGTCTGCGGTTGCGTGAGTCATACATCACAACA						: 764
LpPEPCb5 :	AGCGTCTGCGGTTGCGTGAGTCATACATCACAACATTGAATGTTTGCCAAGCCTACACCC						: 230
LpPEPCb6 :	AGCGTCTGCGGTTGCGTGAGTCATACATCACAACATTGAATGTTTGCCAAGCCTACACCC						: 92
	*	1220	*	1240	*	1260	
LpPEPCb1 :	-----		-----		-----		-
LpPEPCb2 :	-----		-----		-----		-
LpPEPCb3 :	-----		-----		-----		-
LpPEPCb4 :	-----		-----		-----		-
LpPEPCb5 :	TGAAGCGGATAAGAGACCCTAGCTTCGAGGTGACACCGCAGCAGGCACCTCTGTGCGAAGG						: 290
LpPEPCb6 :	TGAAGCGGATAAGAGACCCTAGCTTCGAGGTGACACCGCAGCAGGCACCTCTGTGCGAAGG						: 152

FIGURE 46 (cont.)

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		*	1280	*	1300	*	1320		
LpPEPCb1	:	-----		-----		-----		:	-
LpPEPCb2	:	-----		-----		-----		:	-
LpPEPCb3	:	-----		-----		-----		:	-
LpPEPCb4	:	-----		-----		-----		:	-
LpPEPCb5	:	AGTTCGCTGATGAGAAGGAGCCAGCTGAGCTGGTGCAACTGAACCGTGGGAGCGAGTACG						:	350
LpPEPCb6	:	AGTTCGCTGATGAGAAGGAGCCAGCTGAGCTGGTGCAACTGAACCGTGGGAGCGAGTACG						:	212
		*	1340	*	1360	*	1380		
LpPEPCb1	:	-----		-----		-----		:	-
LpPEPCb2	:	-----		-----		-----		:	-
LpPEPCb3	:	-----		-----		-----		:	-
LpPEPCb4	:	-----		-----		-----		:	-
LpPEPCb5	:	CCCCAGGCCTGGAGGACACCCTCATCCTTACCATGAAGGGTA-TTGCTGTGGAATGCAAA						:	409
LpPEPCb6	:	CCCCAGGCCTGGAGGACACCCTCATCCTTACCATGAAGGGTATTTGCTGTGGAATGCAAA						:	272
		*	1400	*	1420	*	1440		
LpPEPCb1	:	-----		-----		-----		:	-
LpPEPCb2	:	-----		-----		-----		:	-
LpPEPCb3	:	-----		-----		-----		:	-
LpPEPCb4	:	-----		-----		-----		:	-
LpPEPCb5	:	ACACAGGCTAGGCCAGTTTGCCTA-TTGAATAAAGTGCATCCGTCAGATGGGGCGTGA						:	468
LpPEPCb6	:	ACACAGGCTAGGCCAGTTTGCCTATTTGAATAAAGTGCATCCCGTCAGAT-GGGCGTGA						:	331
		*	1460	*	1480	*	1500		
LpPEPCb1	:	-----		-----		-----		:	-
LpPEPCb2	:	-----		-----		-----		:	-
LpPEPCb3	:	-----		-----		-----		:	-
LpPEPCb4	:	-----		-----		-----		:	-
LpPEPCb5	:	ATATGTGTGTTCCCCAAATGCTAGTGAACCCCTGGAGGCATTTTGGCCACTTACATGCCTT						:	528
LpPEPCb6	:	ATATGTGTGTTCCCCAAATGCTAGTGAACCCCTGGAGGCA-TTTGGCCACTTACATGCCTT						:	390
		*	1520	*	1540	*	1560		
LpPEPCb1	:	-----		-----		-----		:	-
LpPEPCb2	:	-----		-----		-----		:	-
LpPEPCb3	:	-----		-----		-----		:	-
LpPEPCb4	:	-----		-----		-----		:	-
LpPEPCb5	:	TTGGTTATGATGATGAC-TTGATCTTAATGNCAAGGGTTGTTGAAGCCTGATCTAAATAAA						:	587
LpPEPCb6	:	TTGGTTATGGATGNACTTTGATCTTAATGTCANNGGTTGTTGAAGCCTGATCTAAATNAA						:	450
		*	1580	*	1600	*	1620		
LpPEPCb1	:	-----		-----		-----		:	-
LpPEPCb2	:	-----		-----		-----		:	-
LpPEPCb3	:	-----		-----		-----		:	-
LpPEPCb4	:	-----		-----		-----		:	-
LpPEPCb5	:	ATATGGAACAATGATATTCTGG-NGGATCTAATAATTGCTTGGCTCTGGCATCGNAATA						:	646
LpPEPCb6	:	ATATGGAACAATGATATTCTGGTTGTTTCTTA						:	482
		*	1640						
LpPEPCb1	:	-----						:	-
LpPEPCb2	:	-----						:	-
LpPEPCb3	:	-----						:	-
LpPEPCb4	:	-----						:	-
LpPEPCb5	:	GNGATTGGAGTNGTTTAAC						:	666
LpPEPCb6	:	-----						:	-

FIGURE 46 (cont.)

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LpPEPCc : AGCANTCTGTNCTTNCCANCAACCACGTTTTGTNCGAATACTTNCCGCTCGGCAACACCT : 60
* 20 * 40 * 60

LpPEPCc : GCACACTGAATATGGTCGGCATGAATATTGGTAGCCGGCCATCAAAGAGAAAGCCTAGTG : 120
* 80 * 100 * 120

LpPEPCc : GAGGCATAGAATCGCTCCGTGCAATTCCATGCATCTTTGNTTGGACACAGACAAGGNTTN : 180
* 140 * 160 * 180

LpPEPCc : ATNTTCCTGTATGNCTTGNATTGCGNCTCCACCNCACCCCCNTA : 224
* 200 * 220

FIGURE 47

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 * 20 * 40 * 60
LpPEPCc : XSXLXXNHVLXKEYXPLGNTCTLNVMVGMNIGSRPSKRKPSGGIESLRAIPCIFXWTQTRXX : 60

 *
LpPEPCc : XPVXLXFXSTXTP : 73

FIGURE 48

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LpPEPCd : GTTNCTGGAACNAAGGATCTTCTTGAAGGTGATCCCTACCTGAAGCAGCGGCTCCGCCTC : 60
 * 20 * 40 * 60

LpPEPCd : CGTGACGCGTACATCACCACCATGAACGTATGCCAGGCCTACACATTGAAGCGGATCCGT : 120
 * 80 * 100 * 120

LpPEPCd : GACCCAGACTACCACGTCGCACTGCGGCCCATCTTTCCAAGGAGGTTATGGACACAAGC : 180
 * 140 * 160 * 180

LpPEPCd : AAGCCGGCTTCCGAGCTTGTGACGCTGAACCCGGCCAGCGAGTACGCCCCGGGGCTGGAG : 240
 * 200 * 220 * 240

LpPEPCd : GACACCCTCATCTTGACCATGAAGGGCGTTGCTGCCGGTCTGCAAAACACCGGTTAGGGC : 300
 * 260 * 280 * 300

LpPEPCd : CAGGAGAGATGCCTGATCACCATCTTTTTGTATCTTCATGATGATGCGATGTTTTTCTTT : 360
 * 320 * 340 * 360

LpPEPCd : AGTCGTTTGCGGTGGGCCTTATATCTCTCGGACGTAGCTGCATCTGTCTCCCTGCTCAGT : 420
 * 380 * 400 * 420

LpPEPCd : GAGGAATAATGGCGTTTCGCCCAAGTATATTGATAAATAAAGGGAACCGATGTTAATTTTC : 480
 * 440 * 460 * 480

LpPEPCd : AGATTTGTTTGTAGTAATTGTTCTATTTATTTTGCGAAAAAAAAA : 527
 * 500 * 520

FIGURE 49

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LpPEPCd : VXGXKD LLEGDPY LKQRLRL RDAYIT TMTNVCQAYTL KRI RDPDYH VALRPHLSKEVMDTS : 60

* 80 *

LpPEPCd : KPASELVTLPASEYAPGLEDTLILTMKGVAAGLQNTG : 98

FIGURE 50

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LpPEPCe : * 20 * 40 * 60
GTTACACGCGCAGTTTGCTTGTTAGCAAGGNAGATGGCTGCTAACTTGTTACTTCTCTCAG : 60

LpPEPCe : * 80 * 100 * 120
ATAGAAGATCTGATGTTTGAGCTCTCTATGTGGCGCTGCAGTGATGAACTTAGGGTCCGT : 120

LpPEPCe : * 140 * 160 * 180
GCAGATGAAGTACATCTGTCCTCAAAAAAAAAAATCTGCAAAGCATTACATAGAGTTCTGG : 180

LpPEPCe : * 200 * 220 * 240
AAGCAAGTTCCTCCAAATGAACCTTATCGTGTCTACTTGGCGATGTCAGGGATAAACTG : 240

LpPEPCe : * 260 * 280 * 300
TACTATACGCGCGAACGTTCTCGCCACATATTGACAACTGGAATTCAGACATTCAGAA : 300

LpPEPCe : * 320 * 340 * 360
GNGTCAACTTTTACTAATGTTGAACTGTTTCTGGAACCTCTTGAGCTGTGCTACAGATCC : 360

LpPEPCe : * 380 * 400 * 420
TTATCTTNCTGTGGNGACAAANCTATTGCTGANGGAAGCCTTCTTGATTTCTNGCGNNCN : 420

LpPEPCe : * 440 *
GNATCNACTTTGTGGGCTTACTCTNGCGAA : 450

FIGURE 51

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LpPEPCe : VTRAVCLL^{*}LARXMAANLYFSQIEDLMFELSMWRCSDELRVRADEVHLSSKKKSAKH^{*}YIEFW : 60^{20 40 60}

LpPEPCe : KQVPPNEPYRVILGDVRDKLYYTRERSRHILTTGISDIPEXSTFTNVELFLEPLELCYRS : 120^{80 100 120}

LpPEPCe : LSXCXDKX^{*}IA¹⁴⁰XSLLDFXXXXXTLWAYSXE : 150^{*}

FIGURE 52

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LpPEPCf : GGGGTGGTGGCCCTNCTCACCTTGCCCTNCCTGTCTCANCCACCAGNCACAATCAACGGAT : 60
 * 20 * 40 * 60

LpPEPCf : CACTCCGGGTGACTGTTCAAGGTGAAGTTATTGAGCAGAGCTTTGGGGAGGAACACTTGT : 120
 * 80 * 100 * 120

LpPEPCf : GCTTCAGGACGCTGCAGCGTTTTCACAGCTGCTACTCTTGAGCATGGGATGCGTCCACCCA : 180
 * 140 * 160 * 180

LpPEPCf : TTTCACCAAAGCCAGAGTGGCGAGCTCTTCTTGATGAGATGGCTGTGGTTGCAACTGAGG : 240
 * 200 * 220 * 240

LpPEPCf : AATACCGGTCAATCGTCTTCCAAGAACCACGCTTCGTCGAGTATTTCCGCCTTGCAACAC : 300
 * 260 * 280 * 300

LpPEPCf : CAGAGACAGAGTATGGCAGGATGAATATAGGAAGCAGGCCATCAAAGAGAAAACCAAGTG : 360
 * 320 * 340 * 360

LpPEPCf : GTGGCATTGAATCACTCCGTGCAATTCCATGGATCTTCGCATGGACGCAGACACGGTTCC : 420
 * 380 * 400 * 420

LpPEPCf : ACCTTCCAGTCTGGTTGGGCTTTGGTGGTGCAATTCAAGCATATCCTCAAGAAGGACATCA : 480
 * 440 * 460 * 480

LpPEPCf : GAAATTTCCATATGCTCCAGGAGATGTACAACGAGTGGCCATTTTTTCAGGGTCACGATCG : 540
 * 500 * 520 * 540

LpPEPCf : ATCTTGTTGAGATGGTGTTCGCCAAGGGTAACCTGGCATTGCTGCCTTGTATGACAGGC : 600
 * 560 * 580 * 600

LpPEPCf : TCCTGGTTTTCAGAGGAGCTACAGCCACTGGGTGACAAGCTGAGG : 644
 * 620 * 640

FIGURE 53

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LpPEPCf : GGGPXHLAXLSXPPXTINGSLRVTVQGEVIEQSFGEHLCFRTLQRF^{*}TAATLEHGMRPPI : 60
20 40 60

LpPEPCf : SPKPEWRALLDEMAVVATEEYRSIVFQEPRFVEYFRLATPETEYGRMNIGSRPSKRKPSG : 120
80 100 120

LpPEPCf : GIESLRAIPWIFAWTQTRFHLPVWLGF^{*}GGAFKHILKKDIRNFHMLQEMYNEWPF^{*}FRVTID : 180
140 160 180

LpPEPCf : LVEMVFAKGNPGIAALYDRLLVSEELQPLGDKLR : 214
200

FIGURE 54

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TrMDHa : GGCTTCTTAAAAACNCACTAAACTCTTTTCTATTGTTCTTATTTCTTCGATCTATTTCCA : 60

TrMDHa : ATGGCCAAAGACCCAGTTCGTGTTCTTGTCACCTGGTGCTGCAGGACAAATTGGGTATGCT : 120

TrMDHa : CTTGTCCCTATGATTGCTAGGGGAGTGATGCTCGGCCCTGACCAGCCTGTGATCCTCCAC : 180

TrMDHa : ATGCTTGACATTCCACCTGCAGCCGAATCACTCAACGGTGTAAAATGGAGTTGGTGGAT : 240

TrMDHa : GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACAACCTGATGTGGTTGAGGCATGCACT : 300

TrMDHa : GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA : 360

TrMDHa : GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT : 420

TrMDHa : GCTGCTGCAAACTGCAAGGTTCTTGTGTTGCCAACCAGCAAACACCAATGCATTGATC : 480

TrMDHa : TTGAAGGAATATGCTCCATCCATTCCCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC : 540

TrMDHa : CATAACAGGGCACTAGGTCAAATTTCTGAAAGACTAAACGTTGAAGTTTCTGATGTGAAA : 600

TrMDHa : AATGTTATAATATGGGGGAAATNATTCATCAACTCAATACCCTGNTGTNAACCACNCAAC : 660

TrMDHa : CGTTAAAATCTCCT : 674

FIGURE 55

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TrMDHa : * 20 * 40 * 60
MAKDPVRVLVTGAAGQIGYALVPMIARGVMLGPDQPVILHMLDIPPAESLNGVKMELVD : 60

TrMDHa : * 80 * 100 * 120
AAFPLLKGVVATTDVVEACTGVNIAVMVGGFPRKEGMERKDVMTKNVSIYKSQASALEKH : 120

TrMDHa : * 140 * 160 * 180
AAANCKVLVVANPANTNALILKEYAPSIPEKNISALTRLDHNRALGQISERLNVEVSDVK : 180

TrMDHa : * 200
NVIIWGKXFINSIPXCXPXNR : 201

FIGURE 56

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		*	20	*	40	*	60		
TrMDHa1	:	GGTTTCTT	ENAAACN	CNCTAA	CTCTTTTCTATTG	TCTN	TTTCTTCGATCTATT	TCCA : 60	
TrMDHa2	:	-GCN	CTATAA	ECTCTTT	ENCTN	ECTCTATTGTTCTT	ATTTCTTCGATCTAT	ATCCA : 59	
TrMDHa3	:	-GC	TTCTT	-AAAAC	-CACTAA	ACTCTTTTCTATTG	TCTTATTTCTTCGATCTATT	TCCA : 57	
TrMDHa4	:	-GC	ATCTT	-AAAAC	-CACTAA	ACTCTTTTCTATTG	TCTTATTTCTTCGATCTATT	TCCA : 57	
TrMDHa5	:	--CTT	CTT	-NAAAC	-CACTAA	ACTCTTTTCTATTG	TCTTATTTCTTCGATCTATT	TCC- : 55	
TrMDHa6	:	-----	CTN	TAAACN	CACTAA	ACTCTTTTCTATTG	TCTTATTTCTTCGATCTATT	TTCN- : 54	
TrMDHa7	:	-----	-----	GCAN	TAAACTCTTTT	TATTGTTCTT	NTTTCTTCGATCTATT	TTC- : 45	
TrMDHa8	:	-----	-----	GCAN	TAAACTCTTTT	TATTGTTCTT	NTTTCTTCGATCTATT	TTC- : 45	
TrMDHa9	:	-----	-----	CACT	-AACTCTTTTCT	-TTGTTCTT	NTTTCTTCGATC	-ATTTC : 41	
TrMDHa10	:	-----	-----	TAA	ACTCTTTTCTATTG	TCTT	NTTTCTTCGATCTATT	TTC- : 41	
TrMDHa11	:	-----	-----	-----	AAACTCTTTTCTATTG	TCTTATT	TTCCTTCGATCTATT	TTC : 41	
		*	80	*	100	*	120		
TrMDHa1	:	ATGGCCAAAG	ACCCAGTTC	CGTGTCTT	GTCTGTC	NCTGGT	GCTGCAGGACA	AGTTGGGTATGCT : 120	
TrMDHa2	:	ATGGCCAAAG	ACCCAGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AAATTGGGTATGCT : 119	
TrMDHa3	:	ATGGCCAAAG	ACCCAGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AAATTGGGTATGCT : 117	
TrMDHa4	:	ATGGCCAAAG	ACCCAGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AAATTGGGTATGCT : 117	
TrMDHa5	:	ATGGCCAAAG	ACCCAGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AGTTGGGTATGCT : 115	
TrMDHa6	:	ATGGCCAAAG	ACCCAGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AGTTGGGTATGCT : 114	
TrMDHa7	:	ATGGCC	-AAGACCC	AGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AAATTGGGTATGCT : 104
TrMDHa8	:	ATGGCC	-AAGACCC	AGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AAATTGGGTATGCT : 103
TrMDHa9	:	ATGGCC	-AAGACCC	AGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AGTTGGGTATGCT : 99
TrMDHa10	:	ATGGCC	-AAGACCC	AGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AAATTGGGTATGCT : 100
TrMDHa11	:	ATGGCC	-AAGACCC	AGTTC	CGTGTCTT	GTCTGTC	ACTGGT	GCTGCAGGACA	AAATTGGGTATGCT : 101
		*	140	*	160	*	180		
TrMDHa1	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	NCTGACCA	NNCTGTGATCCTN	CAC : 180
TrMDHa2	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 179
TrMDHa3	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 177
TrMDHa4	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 177
TrMDHa5	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 175
TrMDHa6	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 174
TrMDHa7	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 164
TrMDHa8	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 163
TrMDHa9	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 159
TrMDHa10	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 160
TrMDHa11	:	CTTGTCCCT	TATGATTG	CTAGGGG	AGTGATG	CTCGG	CCCTGAC	CAGCCTGTGATCCT	CCAC : 161
		*	200	*	220	*	240		
TrMDHa1	:	ATGCTTGAC	ATTN	CACCTG	GGAG	-----	-----	----- : 202	
TrMDHa2	:	ATGCTTGAC	AT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 239	
TrMDHa3	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 237	
TrMDHa4	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 237	
TrMDHa5	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 235	
TrMDHa6	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 234	
TrMDHa7	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 224	
TrMDHa8	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 223	
TrMDHa9	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 219	
TrMDHa10	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 220	
TrMDHa11	:	ATGCTTGAC	ATT	CCACCT	GCAGCCGA	ATCACT	CAACGGT	GTGTTAAAATGGAGTTGGTGGAT : 221	

FIGURE 57

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	*	260	*	280	*	300		
TrMDHa1	:	-----					:	-
TrMDHa2	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	299
TrMDHa3	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	297
TrMDHa4	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	297
TrMDHa5	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	295
TrMDHa6	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	294
TrMDHa7	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	284
TrMDHa8	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	283
TrMDHa9	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	279
TrMDHa10	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	280
TrMDHa11	:	GCTGCATTCCCTCTTCTTAAAGGAGTTGTTGCTACCACTGATGTGGTTGAGGCATGCACT					:	281

	*	320	*	340	*	360		
TrMDHa1	:	-----					:	-
TrMDHa2	:	GGGGTCAATATTGCCGTTATGGTTGGCGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	359
TrMDHa3	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	357
TrMDHa4	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	357
TrMDHa5	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	355
TrMDHa6	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	344
TrMDHa7	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	344
TrMDHa8	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	343
TrMDHa9	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	339
TrMDHa10	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	340
TrMDHa11	:	GGTGTCAATATTGCCGTTATGGTTGGTGGGTTCCCTAGAAAAGAAGGTATGGAGAGGAAA					:	341

	*	380	*	400	*	420		
TrMDHa1	:	-----					:	-
TrMDHa2	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	419
TrMDHa3	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	417
TrMDHa4	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	417
TrMDHa5	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	415
TrMDHa6	:	-----					:	-
TrMDHa7	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	404
TrMDHa8	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	403
TrMDHa9	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	399
TrMDHa10	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	400
TrMDHa11	:	GATGTGATGACAAAAATGTCTCTATTTACAAGTCTCAGGCTTCTGCCCTTGAAAAACAT					:	400

	*	440	*	460	*	480		
TrMDHa1	:	-----					:	-
TrMDHa2	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	479
TrMDHa3	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	477
TrMDHa4	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	477
TrMDHa5	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	475
TrMDHa6	:	-----					:	-
TrMDHa7	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	464
TrMDHa8	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	463
TrMDHa9	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	459
TrMDHa10	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	460
TrMDHa11	:	GCTGCTGCAAACTGCAAGGTTCTTGTGTTGTTGCCAACCAGCAAACACCAATGCATTGATC					:	460

FIGURE 57 (cont.)

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	*	500	*	520	*	540	
TrMDHa1	:	-----	:	-----	:	-----	:
TrMDHa2	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 539
TrMDHa3	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 537
TrMDHa4	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 537
TrMDHa5	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 535
TrMDHa6	:	-----	:	-----	:	-----	:
TrMDHa7	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 524
TrMDHa8	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 523
TrMDHa9	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 519
TrMDHa10	:	TTGAAGGAATATGCTCCATCCATT	:	CCTGAGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 520
TrMDHa11	:	TTGAAGGAATATGCTCCAT	:	TCATTCCCTGAAAAACATTTCTGCTTTGACTAGATTGGAC	:		: 520

	*	560	*	580	*	600	
TrMDHa1	:	-----	:	-----	:	-----	:
TrMDHa2	:	CATAACAGGGCACTGGGTCA	:	-----	:	-----	: 559
TrMDHa3	:	CATAACAGGGCACTAGGTCAAATTTCTGAA	:	-----	:	-----	: 567
TrMDHa4	:	CATAACAGGGCACTAGGTCAAATTTCTGAAAGACTAAA	:	-----	:	-----	: 575
TrMDHa5	:	CATAACAGGGCACTAGGTCAAATTTCTGAAAGACTAAACGTTGAAGTTTCTGATGTGAAA	:	-----	:	-----	: 595
TrMDHa6	:	-----	:	-----	:	-----	:
TrMDHa7	:	CATAACAGGGCACTAGGTCAAATTTCTGAAAGAC	:	-----	:	-----	: 558
TrMDHa8	:	CATAACAGGGCACTAGGTCAAATTTCTGAAAGACTAAACGTTGAAGTTTCTGATGTGAAA	:	-----	:	-----	: 583
TrMDHa9	:	CATAACAGGGCACTAGGTCAAATTTCTGAAAGACTAAACGTTGAAGTTTCTGATGTGG	:	-----	:	-----	: 577
TrMDHa10	:	CATAACAGGGCACTAGGTCAAATTTCTGAAAGACTAAACGTTGAAGTTTCTGATGTGAAA	:	-----	:	-----	: 580
TrMDHa11	:	CATAACAGGGCACTAGGTCAAATTTCTGAAAGACTAAACGTTGAAGTTTCTGATGTGAAA	:	-----	:	-----	: 580

	*	620	*	640	*	660	
TrMDHa1	:	-----	:	-----	:	-----	:
TrMDHa2	:	-----	:	-----	:	-----	:
TrMDHa3	:	-----	:	-----	:	-----	:
TrMDHa4	:	-----	:	-----	:	-----	:
TrMDHa5	:	AATGTTAT-A-AT	:	-----	:	-----	: 606
TrMDHa6	:	-----	:	-----	:	-----	:
TrMDHa7	:	-----	:	-----	:	-----	:
TrMDHa8	:	AATGTTATAATCTGGG	:	-----	:	-----	: 599
TrMDHa9	:	-----	:	-----	:	-----	:
TrMDHa10	:	AATGTTATAATCTG	:	-----	:	-----	: 594
TrMDHa11	:	AATGTTAT-ATATGGGGGAAATNATTCATCAACTCAATACCCTGNTGTNAACCACNCAAC	:	-----	:	-----	: 639

	*		
TrMDHa1	:	-----	:
TrMDHa2	:	-----	:
TrMDHa3	:	-----	:
TrMDHa4	:	-----	:
TrMDHa5	:	-----	:
TrMDHa6	:	-----	:
TrMDHa7	:	-----	:
TrMDHa8	:	-----	:
TrMDHa9	:	-----	:
TrMDHa10	:	-----	:
TrMDHa11	:	CGTTAAAAATCTCCT	: 653

FIGURE 57 (cont.)

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TrMDHb : TTCTCCCANAAATCNNGAAANCGCCCANACATCACACAACATAACACCTTACTCTNCTTTC : 60
 * 20 * 40 * 60

TrMDHb : TCTCTNAACAAAACTGTTCTTCCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCCATTCT : 120
 * 80 * 100 * 120

TrMDHb : TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT : 180
 * 140 * 160 * 180

TrMDHb : TATGCACTTGTCCTTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC : 240
 * 200 * 220 * 240

TrMDHb : CTTACATGCTTGATATTCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG : 300
 * 260 * 280 * 300

TrMDHb : GTCGATGCTGCATTTCCACTTCTTAAAGGTGTTGTTGCTACAACCTGATGTTGTTGAAGCA : 360
 * 320 * 340 * 360

TrMDHb : TGCACTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG : 420
 * 380 * 400 * 420

TrMDHb : AGGAAGGATGTGATGTCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA : 480
 * 440 * 460 * 480

TrMDHb : AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCAGCAAACACCAATGCA : 540
 * 500 * 520 * 540

TrMDHb : TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA : 600
 * 560 * 580 * 600

TrMDHb : CTTGATCACAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT : 660
 * 620 * 640 * 660

TrMDHb : GTAAAGAATGTCATTATCTGGGGTAATCATTCATCAACTCAGTATCCTGATGTCAACCAT : 720
 * 680 * 700 * 720

TrMDHb : GCAACTGTTAACACCCCGCTGGGGAGAAGCCTGTCCGTGAGCTTGTTTCTGATGACGCC : 780
 * 740 * 760 * 780

TrMDHb : TGGTTGAATGGAGAATTCATATCTACCGTTCAACAACGTGGTGCTGCAATTATTAAGGCT : 840
 * 800 * 820 * 840

TrMDHb : AGAAAGCTTTCAAGCGCACTATCCGCTGCTAGCGCTGCTTGGCACCACATTCGCGATTGG : 900
 * 860 * 880 * 900

TrMDHb : GTTCTTGGAACCTCCCAGGGCACCTTCGTTTCAATGGGAGTGATTTCTGATGGTTCTTAC : 960
 * 920 * 940 * 960

FIGURE 58

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TrMDHb : AACGTACCAGCTGGACTCATCTATTCATTCCCTGTCACCACTGCTAATGGGGAATGGAAA : 1020

TrMDHb : ATTGTTCAAGGACTTTCAATTGACGAGTTCTCAAGGAAGAAGTTGGACTTGACAGCTGAA : 1080

TrMDHb : GAGTTATCCGAGGAAAAGAGTTTGGCATACT : 1111

FIGURE 58 (cont.)

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TrMDHb : * 20 * 40 * 60
MAKDPVRVLVTGAAGQIGYALVPMIARGVMLGPDQPVILHMLDIPPAESLNGVKMELVD : 60

TrMDHb : * 80 * 100 * 120
AAFPLLKGVVATTDVVEACTGVNIAVMVGGFPRKEGMERKDVMSKNVSIYKSQASALEKH : 120

TrMDHb : * 140 * 160 * 180
AAANCKVLVVANPANTNALILKEFAPSIPEKNISCLTRLDHNRALGQISERLNVQVSDVK : 180

TrMDHb : * 200 * 220 * 240
NVIIWGNHSSSTQYPDVNHATVNTPAGEKPVRELVSDDAWLNGEFISTVQQRGAALIKARK : 240

TrMDHb : * 260 * 280 * 300
LSSALSAASAACDHIRDWVLGTPQGTFVSMGVSDGSYNVPAGLIYSFPVTTANGEWKIV : 300

TrMDHb : * 320
QGLSIDEFSRKKLDLTAEELSEEKSLAY : 328

FIGURE 59

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		*	20		*	40		*	60										
TrMDHb1	:	TTCTCCCNNAATCNNGAAANC	NCGC	ACA	CA	ACA	C	TAA	ACT	ACT	A	C	T	C	:	47			
TrMDHb2	:	TTCTCNCANAATCNNGAAANC	CCGC	A	A	A	ACA	C	TAA	ACT	ACT	A	C	T	C	:	45		
TrMDHb3	:		GNAGGACA	CACA	ACA	CA	NCA	C	TAA	CCCT	CACT	C	T	C	:	37			
TrMDHb4	:			CT	TTCA	ACA	CA	ACA	C	TCAC	CCTTNC	CT	A	C	T	C	:	32	
TrMDHb5	:				GCN	CANACATA	AACACAACA	CA	TA	ACCT	NA	CT	NC	TC	:	35			
TrMDHb6	:				CCAA	ACA	CA	ACA	C	TAA	CCT	NACT	N	C	T	C	:	27	
TrMDHb7	:				TTT	ACC	TA	ACC	C	TAN	ACT	CACT	N	C	T	T	C	:	28
TrMDHb8	:					CT	NA	CA	C	TAAC	CCT	CACT	N	C	T	T	C	:	25
TrMDHb9	:							CA	N	NC	TC	ACT	A	C	T	T	C	:	16
TrMDHb10	:							CAN	CAG	TA	ACC	CT	CT	C	T	C	:	21	
TrMDHb11	:							CA	TAGA	CACCT	AAGCT	AC	TC	T	C	:	21		
TrMDHb12	:							AACA	CTA	ACCC	TA	CT	NC	T	C	:	22		
TrMDHb13	:							CA	N	TAAC	CCT	NACT	CA	C	T	C	:	18	
TrMDHb14	:							G	TCA	TC	ACT	N	C	T	T	C	:	14	
TrMDHb15	:							CAG	TA	ACCT	CA	CT	NC	T	C	:	20		
TrMDHb16	:							CA	NAC	CACNT	AAAACT	NC	T	T	C	:	20		
TrMDHb17	:							AC	CACNT	ACCCCT	CCT	TC	:	:	:	:	18		
TrMDHb18	:							A	CACNT	AAGCT	NC	T	T	C	:	:	:	16	
TrMDHb19	:								GT	ANCT	CAGTC	:	:	:	:	:	12		
TrMDHb20	:								GCA	T	C	TC	:	:	:	:	7		
TrMDHb21	:											TC	AC	:	:	:	4		
TrMDHb22	:												TC	:	:	:	2		
TrMDHb23	:													:	:	:	-		
TrMDHb24	:													:	:	:	-		
TrMDHb25	:													:	:	:	-		
TrMDHb26	:													:	:	:	-		
TrMDHb27	:													:	:	:	-		
TrMDHb28	:													:	:	:	-		
TrMDHb29	:													:	:	:	-		
TrMDHb30	:													:	:	:	-		
TrMDHb31	:													:	:	:	-		
TrMDHb32	:													:	:	:	-		

FIGURE 60

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		*	80	*	100	*	120	
TrMDHb1	:	TCT	---	AAACAAA	ACTGTTCTTCCCTCTCTTAATCTTCCCTGTTT	GATTCCTTCCAGTTCT	:	104
TrMDHb2	:	TCT	---	AAACAAA	ACTGTTCTTCCCTCTCTTAATCTTCCCTGTTT	GATTCCTTCCAGTTCT	:	102
TrMDHb3	:	TNA	---	AACAAAA	ACTGTTCTTCCACTCTTAATCTTCCCTGTTTCGATTCCCTTC	AATTCT	:	94
TrMDHb4	:	TCT	:	NAACAAA	CTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	91
TrMDHb5	:	TCT	:	NAACAAA	CTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	91
TrMDHb6	:	TCT	---	AAACAAA	ACTGTTCTTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	84
TrMDHb7	:	TNN	---	AACAAAA	ACTGTTCTTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	85
TrMDHb8	:	TCT	---	NAACAAA	ACTGTTCTTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	84
TrMDHb9	:	TCT	---	AAACAAA	ACTGTTCTTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	72
TrMDHb10	:	TCTCA	---	AACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	78
TrMDHb11	:	TCTCTNAAC	---	AAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	80
TrMDHb12	:	TCTCT	---	NAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	81
TrMDHb13	:	TCT	:	NAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	75
TrMDHb14	:	TNC	---	AAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	71
TrMDHb15	:	TCTCT	---	AAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	79
TrMDHb16	:	TCTCTNAAC	---	AAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	78
TrMDHb17	:	TCT	---	CAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	76
TrMDHb18	:	TCTCTCAAC	---	AAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	74
TrMDHb19	:	TCT	---	NAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	70
TrMDHb20	:	TNA	---	AACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	63
TrMDHb21	:	CTCTNAACAAA	---	AAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	63
TrMDHb22	:	TCT	---	NAACAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	59
TrMDHb23	:	-----	-----	CAAAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	51
TrMDHb24	:	-----	-----	AAA	ACTGTTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	49
TrMDHb25	:	-----	-----	GNN	TTCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	46
TrMDHb26	:	-----	-----	GGT	TCTTCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	44
TrMDHb27	:	-----	-----	TTCC	TCTCTCTTAATCTTCCCTGTTTCGATTCCCTTCC	TTCT	:	39
TrMDHb28	:	-----	-----	-----	-----	-----	:	-
TrMDHb29	:	-----	-----	-----	-----	-----	:	-
TrMDHb30	:	-----	-----	-----	-----	-----	:	-
TrMDHb31	:	-----	-----	-----	-----	-----	:	-
TrMDHb32	:	-----	-----	-----	-----	-----	:	-

FIGURE 60 (cont.)

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	*	140	*	160	*	180	
TrMDHb1 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 164
TrMDHb2 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 162
TrMDHb3 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 154
TrMDHb4 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 151
TrMDHb5 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 151
TrMDHb6 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 144
TrMDHb7 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 145
TrMDHb8 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 144
TrMDHb9 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 132
TrMDHb10 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 138
TrMDHb11 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 140
TrMDHb12 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 141
TrMDHb13 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 135
TrMDHb14 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 131
TrMDHb15 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 139
TrMDHb16 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 138
TrMDHb17 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 136
TrMDHb18 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 134
TrMDHb19 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 130
TrMDHb20 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 123
TrMDHb21 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 123
TrMDHb22 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 119
TrMDHb23 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 110
TrMDHb24 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 109
TrMDHb25 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 106
TrMDHb26 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 103
TrMDHb27 :	TCAAAAATGGCCAAAGACCCAGTTCGTGTTCTCGTCACTGGTGCTGCAGGGCAAATTGGT						: 97
TrMDHb28 :	-----						: -
TrMDHb29 :	-----						: -
TrMDHb30 :	-----						: -
TrMDHb31 :	-----						: -
TrMDHb32 :	-----						: -

FIGURE 60 (cont.)

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	*	200	*	220	*	240	
TrMDHb1	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 224
TrMDHb2	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 222
TrMDHb3	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 214
TrMDHb4	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 211
TrMDHb5	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 211
TrMDHb6	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 204
TrMDHb7	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 205
TrMDHb8	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 204
TrMDHb9	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 192
TrMDHb10	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 198
TrMDHb11	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 200
TrMDHb12	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 201
TrMDHb13	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 195
TrMDHb14	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 191
TrMDHb15	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 199
TrMDHb16	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 198
TrMDHb17	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 196
TrMDHb18	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 194
TrMDHb19	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 190
TrMDHb20	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 183
TrMDHb21	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 183
TrMDHb22	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 179
TrMDHb23	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 170
TrMDHb24	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 169
TrMDHb25	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 166
TrMDHb26	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 163
TrMDHb27	:	TATGCACTTGTCCCTATGATTGCTAGGGGAGTGATGCTTGGTCCTGATCAACCTGTGATC					: 157
TrMDHb28	:	-----GGGGAGTGATGCTTGGTCCTGAT-----NACCTGTGATC					: 34
TrMDHb29	:	-----					: -
TrMDHb30	:	-----					: -
TrMDHb31	:	-----					: -
TrMDHb32	:	-----					: -

FIGURE 60 (cont.)

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	*	260	*	280	*	300	
TrMDHb1 :	CTACACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGATG	:	284			
TrMDHb2 :	CTACACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	282			
TrMDHb3 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	274				
TrMDHb4 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	271				
TrMDHb5 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	271				
TrMDHb6 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	264				
TrMDHb7 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	265				
TrMDHb8 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	264				
TrMDHb9 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	252				
TrMDHb10 :	CTTCACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	258			
TrMDHb11 :	CTTCACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	260			
TrMDHb12 :	CTTCACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	261			
TrMDHb13 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	255				
TrMDHb14 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	251				
TrMDHb15 :	CTTCACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	259			
TrMDHb16 :	CTTCACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	258			
TrMDHb17 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	256				
TrMDHb18 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	254				
TrMDHb19 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	250				
TrMDHb20 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	243				
TrMDHb21 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	243				
TrMDHb22 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	239				
TrMDHb23 :	CTTCACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	230			
TrMDHb24 :	CTTCACATGCTTGATATTCC	CCGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	229			
TrMDHb25 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	226				
TrMDHb26 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	223				
TrMDHb27 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAGATGGAGTTG	:	217				
TrMDHb28 :	CTTCACATGCTTGATATCCTCCAGCAGCAGAGTCATTGAATGGAGTTAAATGGAGTTG	:	93				
TrMDHb29 :	-----TATTCCTNCGCAGCAGAGT-----NTTGAATGGAG-----TAAGATGGAGTTG	:	45				
TrMDHb30 :	-----TATTCCT-----CGGCAGCAGAGT-----NTTGAATGGAG-----TAAGATGGAGTTG	:	43				
TrMDHb31 :	-----	:	-				
TrMDHb32 :	-----	:	-				

FIGURE 60 (cont.)

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	*	320	*	340	*	360	
TrMDHb1	:	GNCGATGCTG	NATTNNCACTT	GTTAAAGG	NCAGCTGCT	-----	: 323
TrMDHb2	:	GTCGATGCTGC	ATTTCCACTT	GTTAAAGG	TGNTGNTACA	ACTGATGATG	: 342
TrMDHb3	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 334
TrMDHb4	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	GTTGTTGCT	ACAACTGATG	: 331
TrMDHb5	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 331
TrMDHb6	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	GTTGTTGCT	ACAACTGATG	: 324
TrMDHb7	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	GTTGTTGCT	ACAACTGATG	: 325
TrMDHb8	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	GTTGTTGCT	ACAACTGATG	: 324
TrMDHb9	:	CGCGATGCTG	NATTNNCACTT	CCTTAAAGG	CCCGCTGCT	ACTGATGCTG	: 312
TrMDHb10	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 318
TrMDHb11	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 320
TrMDHb12	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 321
TrMDHb13	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	GTTGTTGCT	ACAACTGATG	: 315
TrMDHb14	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 311
TrMDHb15	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 319
TrMDHb16	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 318
TrMDHb17	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 316
TrMDHb18	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 314
TrMDHb19	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 310
TrMDHb20	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 303
TrMDHb21	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 303
TrMDHb22	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 299
TrMDHb23	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 290
TrMDHb24	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 289
TrMDHb25	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 286
TrMDHb26	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 283
TrMDHb27	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 277
TrMDHb28	:	GTGGATGCTGC	ATTTCCACTT	CCTTAAAGG	ATTGTTGCT	ACAACTGATG	: 153
TrMDHb29	:	GTCGATGCTGC	ATTTCCACTT	CCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 105
TrMDHb30	:	GTCGATGCTGC	ATTTCC	CTTCTTAAAGG	TGTTGTTGCT	ACAACTGATG	: 102
TrMDHb31	:	-----	-----	-----	-----	-----	: -
TrMDHb32	:	-----	-----	-----	-----	-----	: -

FIGURE 60 (cont.)

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	*	380	*	400	*	420		
TrMDHb1	:	-----					:	-
TrMDHb2	:	TNNNCTGG-----					:	350
TrMDHb3	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	394
TrMDHb4	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	391
TrMDHb5	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	391
TrMDHb6	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	384
TrMDHb7	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	385
TrMDHb8	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	384
TrMDHb9	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	333
TrMDHb10	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	378
TrMDHb11	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	380
TrMDHb12	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	381
TrMDHb13	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	375
TrMDHb14	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	371
TrMDHb15	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	379
TrMDHb16	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	378
TrMDHb17	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	376
TrMDHb18	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	374
TrMDHb19	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	370
TrMDHb20	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	363
TrMDHb21	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	363
TrMDHb22	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	359
TrMDHb23	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	350
TrMDHb24	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	349
TrMDHb25	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	346
TrMDHb26	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	343
TrMDHb27	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	337
TrMDHb28	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	213
TrMDHb29	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	165
TrMDHb30	:	TGCCTGGAGTCAATATTGCAGTCATGGTTGGTGGATTCCCAAGAAAAGAAGGTATGGAG					:	162
TrMDHb31	:	-----GGAG					:	4
TrMDHb32	:	-----NNNN					:	4

FIGURE 60 (cont.)

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	*	440	*	460	*	480		
TrMDHb1	:	-----					:	-
TrMDHb2	:	-----					:	-
TrMDHb3	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	454
TrMDHb4	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	451
TrMDHb5	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	451
TrMDHb6	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	444
TrMDHb7	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	445
TrMDHb8	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	444
TrMDHb9	:	-----					:	-
TrMDHb10	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	438
TrMDHb11	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	440
TrMDHb12	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	441
TrMDHb13	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	435
TrMDHb14	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	431
TrMDHb15	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	439
TrMDHb16	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	438
TrMDHb17	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	436
TrMDHb18	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	434
TrMDHb19	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	430
TrMDHb20	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	423
TrMDHb21	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	423
TrMDHb22	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	419
TrMDHb23	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	410
TrMDHb24	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	409
TrMDHb25	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	406
TrMDHb26	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	403
TrMDHb27	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	397
TrMDHb28	:	AGGAAGGATGTGATGCTAAGAAAGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	273
TrMDHb29	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	225
TrMDHb30	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	222
TrMDHb31	:	AGGAAGGATGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	64
TrMDHb32	:	NNGNANGNNGTGATGCTAAGAACGTCTCTATTTACAAGTCCCAGGCTTCTGCCCTTGAA					:	64

FIGURE 60 (cont.)

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	*	500	*	520	*	540		
TrMDHb1	:	-----					:	-
TrMDHb2	:	-----					:	-
TrMDHb3	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	514
TrMDHb4	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	511
TrMDHb5	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	510
TrMDHb6	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	504
TrMDHb7	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	505
TrMDHb8	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	504
TrMDHb9	:	-----					:	-
TrMDHb10	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	498
TrMDHb11	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	499
TrMDHb12	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	501
TrMDHb13	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	495
TrMDHb14	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGG-----					:	462
TrMDHb15	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	499
TrMDHb16	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	498
TrMDHb17	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	496
TrMDHb18	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	493
TrMDHb19	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	490
TrMDHb20	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	433
TrMDHb21	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	483
TrMDHb22	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	479
TrMDHb23	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	470
TrMDHb24	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	469
TrMDHb25	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	466
TrMDHb26	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	463
TrMDHb27	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	457
TrMDHb28	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTATTGCTAACCCAGCAAAATACCAATGCA					:	333
TrMDHb29	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	285
TrMDHb30	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	282
TrMDHb31	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	124
TrMDHb32	:	AAGCATGCTGCTGCCAACTGCAAGGTTTTGGTTGTTGCTAACCCAGCAAAACACCAATGCA					:	124

FIGURE 60 (cont.)

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	*	560	*	580	*	600		
TrMDHb1	:	-----					:	-
TrMDHb2	:	-----					:	-
TrMDHb3	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	574
TrMDHb4	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	571
TrMDHb5	:	TTGATCTTGAAGGAATTGCT-----					:	531
TrMDHb6	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	564
TrMDHb7	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	565
TrMDHb8	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	564
TrMDHb9	:	-----					:	-
TrMDHb10	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	558
TrMDHb11	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	559
TrMDHb12	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	561
TrMDHb13	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	555
TrMDHb14	:	-----					:	-
TrMDHb15	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	559
TrMDHb16	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	558
TrMDHb17	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	550
TrMDHb18	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	553
TrMDHb19	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	550
TrMDHb20	:	-----					:	-
TrMDHb21	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	543
TrMDHb22	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	539
TrMDHb23	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	530
TrMDHb24	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	529
TrMDHb25	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	526
TrMDHb26	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	523
TrMDHb27	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	517
TrMDHb28	:	TTGATCTTGAAGGAGTTTGCTCCATCTATTCCAGAGAAAAACATTTCCAGCTTTGACTAGA					:	393
TrMDHb29	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	345
TrMDHb30	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	342
TrMDHb31	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	184
TrMDHb32	:	TTGATCTTGAAGGAATTTGCTCCATCTATTCCAGAGAAAAACATTTCTTGTGTTGACTAGA					:	184

FIGURE 60 (cont.)

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	*	620	*	640	*	660	
TrMDHb1	:	-----	:	-----	:	-----	-
TrMDHb2	:	-----	:	-----	:	-----	-
TrMDHb3	:	CTTGATCACAA	:	-----	:	-----	585
TrMDHb4	:	CTTGATCACAAACAGGGCATTGG	:	-----	:	-----	593
TrMDHb5	:	-----	:	-----	:	-----	-
TrMDHb6	:	CTTGATCAC	:	-----	:	-----	573
TrMDHb7	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAG	:	-----	:	-----	603
TrMDHb8	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCT	:	-----	:	-----	597
TrMDHb9	:	-----	:	-----	:	-----	-
TrMDHb10	:	CTTGATCAC	:	-----	:	-----	567
TrMDHb11	:	CTTGATCACG	:	-----	:	-----	569
TrMDHb12	:	CTTGATCACAAACAGGGCATTGGGCCAAATTT	:	-----	:	-----	592
TrMDHb13	:	CTTGATCACAAACAGGGCATTGGGCCAAATTT	:	-----	:	-----	585
TrMDHb14	:	-----	:	-----	:	-----	-
TrMDHb15	:	CTTGATCACAAACAG	:	-----	:	-----	573
TrMDHb16	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAAT	:	-----	:	-----	603
TrMDHb17	:	-----	:	-----	:	-----	-
TrMDHb18	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAG	:	-----	:	-----	591
TrMDHb19	:	CTTGATCACAAACAGGGCATTG	:	-----	:	-----	571
TrMDHb20	:	-----	:	-----	:	-----	-
TrMDHb21	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTG	:	-----	:	-----	585
TrMDHb22	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATATTCAAGTTTCTGAT	:	-----	:	-----	599
TrMDHb23	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAG	:	-----	:	-----	568
TrMDHb24	:	CTTGATCACAAACAGGGCATTGGGCCAAAT	:	-----	:	-----	558
TrMDHb25	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT	:	-----	:	-----	586
TrMDHb26	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATATTCAAGTTTCTGAT	:	-----	:	-----	583
TrMDHb27	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT	:	-----	:	-----	573
TrMDHb28	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT	:	-----	:	-----	453
TrMDHb29	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT	:	-----	:	-----	405
TrMDHb30	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT	:	-----	:	-----	402
TrMDHb31	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT	:	-----	:	-----	244
TrMDHb32	:	CTTGATCACAAACAGGGCATTGGGCCAAATTTCTGAAAGATTGAATGTTCAAGTTTCTGAT	:	-----	:	-----	244

FIGURE 60 (cont.)

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	*	680	*	700	*	720	
TrMDHb1	:	-----	-----	-----	-----	-----	-
TrMDHb2	:	-----	-----	-----	-----	-----	-
TrMDHb3	:	-----	-----	-----	-----	-----	-
TrMDHb4	:	-----	-----	-----	-----	-----	-
TrMDHb5	:	-----	-----	-----	-----	-----	-
TrMDHb6	:	-----	-----	-----	-----	-----	-
TrMDHb7	:	-----	-----	-----	-----	-----	-
TrMDHb8	:	-----	-----	-----	-----	-----	-
TrMDHb9	:	-----	-----	-----	-----	-----	-
TrMDHb10	:	-----	-----	-----	-----	-----	-
TrMDHb11	:	-----	-----	-----	-----	-----	-
TrMDHb12	:	-----	-----	-----	-----	-----	-
TrMDHb13	:	-----	-----	-----	-----	-----	-
TrMDHb14	:	-----	-----	-----	-----	-----	-
TrMDHb15	:	-----	-----	-----	-----	-----	-
TrMDHb16	:	-----	-----	-----	-----	-----	-
TrMDHb17	:	-----	-----	-----	-----	-----	-
TrMDHb18	:	-----	-----	-----	-----	-----	-
TrMDHb19	:	-----	-----	-----	-----	-----	-
TrMDHb20	:	-----	-----	-----	-----	-----	-
TrMDHb21	:	-----	-----	-----	-----	-----	-
TrMDHb22	:	GTAAAGAATGT	-----	-----	-----	-----	610
TrMDHb23	:	-----	-----	-----	-----	-----	-
TrMDHb24	:	-----	-----	-----	-----	-----	-
TrMDHb25	:	GTAAAGAATGTCATTATCTGGGGTAATCATT	CAACTCAGTATCCTGATGTCAACCAT	-----	-----	-----	646
TrMDHb26	:	-----	-----	-----	-----	-----	-
TrMDHb27	:	-----	-----	-----	-----	-----	-
TrMDHb28	:	GTAAAGAATGTCATTATCTGGGGTAATCATT	CAACTCAGTATCCTGATGTCAACCAT	-----	-----	-----	513
TrMDHb29	:	GTAAAGAATGTCATTATCTGGGGTAATCATT	CAACTCAGTATCCTGATGTCAACCAT	-----	-----	-----	465
TrMDHb30	:	GTAAAGAATGTCATTATCTGGGGTAATCATT	CAACTCAGTATCCTGATGTCAACCAT	-----	-----	-----	462
TrMDHb31	:	GTAAAGAATGTCATTATCTGGGGTAATCATT	CAACTCAGTATCCTGATGTCAACCAT	-----	-----	-----	304
TrMDHb32	:	GTAAAGAATGTCATTATCTGGGGTAATCATT	CAACTCAGTATCCTGATGTCAACCAT	-----	-----	-----	304

FIGURE 60 (cont.)

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	*	740	*	760	*	780	
TrMDHb1	:	-----	:	-----	:	-----	-
TrMDHb2	:	-----	:	-----	:	-----	-
TrMDHb3	:	-----	:	-----	:	-----	-
TrMDHb4	:	-----	:	-----	:	-----	-
TrMDHb5	:	-----	:	-----	:	-----	-
TrMDHb6	:	-----	:	-----	:	-----	-
TrMDHb7	:	-----	:	-----	:	-----	-
TrMDHb8	:	-----	:	-----	:	-----	-
TrMDHb9	:	-----	:	-----	:	-----	-
TrMDHb10	:	-----	:	-----	:	-----	-
TrMDHb11	:	-----	:	-----	:	-----	-
TrMDHb12	:	-----	:	-----	:	-----	-
TrMDHb13	:	-----	:	-----	:	-----	-
TrMDHb14	:	-----	:	-----	:	-----	-
TrMDHb15	:	-----	:	-----	:	-----	-
TrMDHb16	:	-----	:	-----	:	-----	-
TrMDHb17	:	-----	:	-----	:	-----	-
TrMDHb18	:	-----	:	-----	:	-----	-
TrMDHb19	:	-----	:	-----	:	-----	-
TrMDHb20	:	-----	:	-----	:	-----	-
TrMDHb21	:	-----	:	-----	:	-----	-
TrMDHb22	:	-----	:	-----	:	-----	-
TrMDHb23	:	-----	:	-----	:	-----	-
TrMDHb24	:	-----	:	-----	:	-----	-
TrMDHb25	:	GCAACTGTTAACACCCCCGCTGGGGAGAAGCCTGTCCGTGAGCTTGTTTCTGATGACGCC					706
TrMDHb26	:	-----	:	-----	:	-----	-
TrMDHb27	:	-----	:	-----	:	-----	-
TrMDHb28	:	GCAACTGTTAACACCCCCGCTGGGGAGAAGCCTGTCCGTGA ⁵ ACTTGTTT					562
TrMDHb29	:	GCAACTGTTAACACCC ⁴ NCGCTG ⁴ NNGAGAAGCCTG ⁴ CCGTGAGCT ⁴ NGTTTC					515
TrMDHb30	:	GCAACTGTTAACACCCCCGCTGGGGAGAAGCCTGTCCGTGAGCTTGTTTCTGATGACGCC					522
TrMDHb31	:	GCAACTGTTAACACCCCCGCTGGGGAGAAGCCTGTCCGTGAGCTTGTTTCTGATGACGCC					364
TrMDHb32	:	GCAACTGTTAACACCCCCGCTGGGGAGAAGCCTGTCCGTGAGCTTGTTTCTGATGACGCC					364

FIGURE 60 (cont.)

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	*	800	*	820	*	840	
TrMDHb1	:	-----	:	-----	:	-----	-
TrMDHb2	:	-----	:	-----	:	-----	-
TrMDHb3	:	-----	:	-----	:	-----	-
TrMDHb4	:	-----	:	-----	:	-----	-
TrMDHb5	:	-----	:	-----	:	-----	-
TrMDHb6	:	-----	:	-----	:	-----	-
TrMDHb7	:	-----	:	-----	:	-----	-
TrMDHb8	:	-----	:	-----	:	-----	-
TrMDHb9	:	-----	:	-----	:	-----	-
TrMDHb10	:	-----	:	-----	:	-----	-
TrMDHb11	:	-----	:	-----	:	-----	-
TrMDHb12	:	-----	:	-----	:	-----	-
TrMDHb13	:	-----	:	-----	:	-----	-
TrMDHb14	:	-----	:	-----	:	-----	-
TrMDHb15	:	-----	:	-----	:	-----	-
TrMDHb16	:	-----	:	-----	:	-----	-
TrMDHb17	:	-----	:	-----	:	-----	-
TrMDHb18	:	-----	:	-----	:	-----	-
TrMDHb19	:	-----	:	-----	:	-----	-
TrMDHb20	:	-----	:	-----	:	-----	-
TrMDHb21	:	-----	:	-----	:	-----	-
TrMDHb22	:	-----	:	-----	:	-----	-
TrMDHb23	:	-----	:	-----	:	-----	-
TrMDHb24	:	-----	:	-----	:	-----	-
TrMDHb25	:	TGGTTGAATGGAGAATTCATATCTACCGTTCAACAACGTGGTGCTG	:	-----	:	-----	752
TrMDHb26	:	-----	:	-----	:	-----	-
TrMDHb27	:	-----	:	-----	:	-----	-
TrMDHb28	:	-----	:	-----	:	-----	-
TrMDHb29	:	-----	:	-----	:	-----	-
TrMDHb30	:	TGGTTGAATGGAGAATTCATATCTACCGTTCAACAACGTGGTGCTGCAATTATTAAGGCT	:	-----	:	-----	582
TrMDHb31	:	TGGTTGAATGGAGAATTCATATCTACCGTTCAACAACGTGGTGCTGCAATTATTAAGGCT	:	-----	:	-----	424
TrMDHb32	:	TGGTTGAATGGAGAATTCATATCTACCGTTCAACAACGTGGTGCTGCAATTATTAAGGCT	:	-----	:	-----	424

FIGURE 60 (cont.)

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	*	860	*	880	*	900	
TrMDHb1	:	-----	:	-----	:	-----	:
TrMDHb2	:	-----	:	-----	:	-----	:
TrMDHb3	:	-----	:	-----	:	-----	:
TrMDHb4	:	-----	:	-----	:	-----	:
TrMDHb5	:	-----	:	-----	:	-----	:
TrMDHb6	:	-----	:	-----	:	-----	:
TrMDHb7	:	-----	:	-----	:	-----	:
TrMDHb8	:	-----	:	-----	:	-----	:
TrMDHb9	:	-----	:	-----	:	-----	:
TrMDHb10	:	-----	:	-----	:	-----	:
TrMDHb11	:	-----	:	-----	:	-----	:
TrMDHb12	:	-----	:	-----	:	-----	:
TrMDHb13	:	-----	:	-----	:	-----	:
TrMDHb14	:	-----	:	-----	:	-----	:
TrMDHb15	:	-----	:	-----	:	-----	:
TrMDHb16	:	-----	:	-----	:	-----	:
TrMDHb17	:	-----	:	-----	:	-----	:
TrMDHb18	:	-----	:	-----	:	-----	:
TrMDHb19	:	-----	:	-----	:	-----	:
TrMDHb20	:	-----	:	-----	:	-----	:
TrMDHb21	:	-----	:	-----	:	-----	:
TrMDHb22	:	-----	:	-----	:	-----	:
TrMDHb23	:	-----	:	-----	:	-----	:
TrMDHb24	:	-----	:	-----	:	-----	:
TrMDHb25	:	-----	:	-----	:	-----	:
TrMDHb26	:	-----	:	-----	:	-----	:
TrMDHb27	:	-----	:	-----	:	-----	:
TrMDHb28	:	-----	:	-----	:	-----	:
TrMDHb29	:	-----	:	-----	:	-----	:
TrMDHb30	:	AGAAAGCTTTCAAGTG	:	-----	:	-----	: 598
TrMDHb31	:	AGAAAGCTTTCAAGCGCACTATCCGCTGCTAGCGCTGCTTGCGACCA	:	-----	:	-----	: 484
TrMDHb32	:	AGAAAGCTTTCAAGCGCACTATCCGCTGCTAGCGCTGCTTGCGACCA	:	-----	:	-----	: 484

FIGURE 60 (cont.)

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	*	920	*	940	*	960	
TrMDHb1	:	-----	:	-----	:	-----	-
TrMDHb2	:	-----	:	-----	:	-----	-
TrMDHb3	:	-----	:	-----	:	-----	-
TrMDHb4	:	-----	:	-----	:	-----	-
TrMDHb5	:	-----	:	-----	:	-----	-
TrMDHb6	:	-----	:	-----	:	-----	-
TrMDHb7	:	-----	:	-----	:	-----	-
TrMDHb8	:	-----	:	-----	:	-----	-
TrMDHb9	:	-----	:	-----	:	-----	-
TrMDHb10	:	-----	:	-----	:	-----	-
TrMDHb11	:	-----	:	-----	:	-----	-
TrMDHb12	:	-----	:	-----	:	-----	-
TrMDHb13	:	-----	:	-----	:	-----	-
TrMDHb14	:	-----	:	-----	:	-----	-
TrMDHb15	:	-----	:	-----	:	-----	-
TrMDHb16	:	-----	:	-----	:	-----	-
TrMDHb17	:	-----	:	-----	:	-----	-
TrMDHb18	:	-----	:	-----	:	-----	-
TrMDHb19	:	-----	:	-----	:	-----	-
TrMDHb20	:	-----	:	-----	:	-----	-
TrMDHb21	:	-----	:	-----	:	-----	-
TrMDHb22	:	-----	:	-----	:	-----	-
TrMDHb23	:	-----	:	-----	:	-----	-
TrMDHb24	:	-----	:	-----	:	-----	-
TrMDHb25	:	-----	:	-----	:	-----	-
TrMDHb26	:	-----	:	-----	:	-----	-
TrMDHb27	:	-----	:	-----	:	-----	-
TrMDHb28	:	-----	:	-----	:	-----	-
TrMDHb29	:	-----	:	-----	:	-----	-
TrMDHb30	:	-----	:	-----	:	-----	-
TrMDHb31	:	GTTCTTGGAAC TCCCCAGGGCACCTTCGTTTCAATGGGAGTGTATTCTGATGGTTCTTAC					544
TrMDHb32	:	GTTCTTGGAAC TCCCCAGGGCACCTTCGTTTCAATGGCAGTGTATTCTGATGGTTCTTAC					544

FIGURE 60 (cont.)

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	*	980	*	1000	*	1020	
TrMDHb1	:	-----		-----		-----	-
TrMDHb2	:	-----		-----		-----	-
TrMDHb3	:	-----		-----		-----	-
TrMDHb4	:	-----		-----		-----	-
TrMDHb5	:	-----		-----		-----	-
TrMDHb6	:	-----		-----		-----	-
TrMDHb7	:	-----		-----		-----	-
TrMDHb8	:	-----		-----		-----	-
TrMDHb9	:	-----		-----		-----	-
TrMDHb10	:	-----		-----		-----	-
TrMDHb11	:	-----		-----		-----	-
TrMDHb12	:	-----		-----		-----	-
TrMDHb13	:	-----		-----		-----	-
TrMDHb14	:	-----		-----		-----	-
TrMDHb15	:	-----		-----		-----	-
TrMDHb16	:	-----		-----		-----	-
TrMDHb17	:	-----		-----		-----	-
TrMDHb18	:	-----		-----		-----	-
TrMDHb19	:	-----		-----		-----	-
TrMDHb20	:	-----		-----		-----	-
TrMDHb21	:	-----		-----		-----	-
TrMDHb22	:	-----		-----		-----	-
TrMDHb23	:	-----		-----		-----	-
TrMDHb24	:	-----		-----		-----	-
TrMDHb25	:	-----		-----		-----	-
TrMDHb26	:	-----		-----		-----	-
TrMDHb27	:	-----		-----		-----	-
TrMDHb28	:	-----		-----		-----	-
TrMDHb29	:	-----		-----		-----	-
TrMDHb30	:	-----		-----		-----	-
TrMDHb31	:	AACGTACCAGCTGGACTCATCTATTCATTCCCTGTCACCACTGCTAATGGGGAATGGAA-					603
TrMDHb32	:	AACGTACCAGCTGGACTCATCTATTCATTCCCTGTCACCACTGCTAATGGGGAATGGAAA					604

FIGURE 60 (cont.)

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	*	1040	*	1060	*	1080	
TrMDHb1	:	-----		-----		-----	:
TrMDHb2	:	-----		-----		-----	:
TrMDHb3	:	-----		-----		-----	:
TrMDHb4	:	-----		-----		-----	:
TrMDHb5	:	-----		-----		-----	:
TrMDHb6	:	-----		-----		-----	:
TrMDHb7	:	-----		-----		-----	:
TrMDHb8	:	-----		-----		-----	:
TrMDHb9	:	-----		-----		-----	:
TrMDHb10	:	-----		-----		-----	:
TrMDHb11	:	-----		-----		-----	:
TrMDHb12	:	-----		-----		-----	:
TrMDHb13	:	-----		-----		-----	:
TrMDHb14	:	-----		-----		-----	:
TrMDHb15	:	-----		-----		-----	:
TrMDHb16	:	-----		-----		-----	:
TrMDHb17	:	-----		-----		-----	:
TrMDHb18	:	-----		-----		-----	:
TrMDHb19	:	-----		-----		-----	:
TrMDHb20	:	-----		-----		-----	:
TrMDHb21	:	-----		-----		-----	:
TrMDHb22	:	-----		-----		-----	:
TrMDHb23	:	-----		-----		-----	:
TrMDHb24	:	-----		-----		-----	:
TrMDHb25	:	-----		-----		-----	:
TrMDHb26	:	-----		-----		-----	:
TrMDHb27	:	-----		-----		-----	:
TrMDHb28	:	-----		-----		-----	:
TrMDHb29	:	-----		-----		-----	:
TrMDHb30	:	-----		-----		-----	:
TrMDHb31	:	-----		-----		-----	:
TrMDHb32	:	ATTGTTCAAGGACTTTCAATTGACGAGTTCTCAAGGAAGAAGTTGGACTTGACAGCTGAA					: 664

FIGURE 60 (cont.)

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		*	1100	*	
TrMDHb1	:	-----			-
TrMDHb2	:	-----			-
TrMDHb3	:	-----			-
TrMDHb4	:	-----			-
TrMDHb5	:	-----			-
TrMDHb6	:	-----			-
TrMDHb7	:	-----			-
TrMDHb8	:	-----			-
TrMDHb9	:	-----			-
TrMDHb10	:	-----			-
TrMDHb11	:	-----			-
TrMDHb12	:	-----			-
TrMDHb13	:	-----			-
TrMDHb14	:	-----			-
TrMDHb15	:	-----			-
TrMDHb16	:	-----			-
TrMDHb17	:	-----			-
TrMDHb18	:	-----			-
TrMDHb19	:	-----			-
TrMDHb20	:	-----			-
TrMDHb21	:	-----			-
TrMDHb22	:	-----			-
TrMDHb23	:	-----			-
TrMDHb24	:	-----			-
TrMDHb25	:	-----			-
TrMDHb26	:	-----			-
TrMDHb27	:	-----			-
TrMDHb28	:	-----			-
TrMDHb29	:	-----			-
TrMDHb30	:	-----			-
TrMDHb31	:	-----			-
TrMDHb32	:	GAGTTATCCGAGGAAAAAGAGTTTGGCATACT			695

FIGURE 60 (cont.)

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TrMDHc : AAAGNGAATTGGAATATACGACACTCCATTCCATACTTCCATTCCNTACTTTGCTTTCTC : 60
 * 20 * 40 * 60

TrMDHc : GCTCTCTCTCTCTTTATTCTCGAAAAGCTTTTTCAGCCAACAACGGAGAGAATTATGAGG : 120
 * 80 * 100 * 120

TrMDHc : CCGTCGATGCTCAGATCCGTCCAATCAGCCGTCTCCCGCGCCTCTTCTCACCTAACCCGC : 180
 * 140 * 160 * 180

TrMDHc : CGTGGCTATGCTACCGAACCAGTTCCAGAACGCAAGGTGGCCATTCTCGGCGCTGCCGGC : 240
 * 200 * 220 * 240

TrMDHc : GGGATCGGCCAGCCTCTCTCTCTCTCATGAAGCTCAACCCTCTCGTTTCAACCCTATCT : 300
 * 260 * 280 * 300

TrMDHc : CTTTATGATATTGCTGGAACCCCTGGTGTGCGCCGCTGATGTCAGCCACATCAACTCCAGA : 360
 * 320 * 340 * 360

TrMDHc : TCTGAGGTAACTGGGTATGCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGAT : 420
 * 380 * 400 * 420

TrMDHc : GTTGTTATAATTCTCTGCTGGTGTGCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTC : 480
 * 440 * 460 * 480

TrMDHc : AATATTAACGCTGGCATTGTCAAGTCACTTGCCACTGCTATTTCTAAGTACTGCCCCCAT : 540
 * 500 * 520 * 540

TrMDHc : GCCCTTGTTAACATGATAAGCAACCCTGTGAACTCCACCGTTCCCATTGCTGCAGAGGTT : 600
 * 560 * 580 * 600

TrMDHc : TTCAAGAAGGCAGGGACATATGACGAGAAGAGATTGTTTGGGGTTACAACCCTTGATGTA : 660
 * 620 * 640 * 660

TrMDHc : GTCAGGGCAAAAACCTTTCTATGCCGGGAAAGCTAAAGTTCCAGTTGCCGAGGTCAATGTA : 720
 * 680 * 700 * 720

TrMDHc : CCTGTTATAGGAGGCCATGCAGGAGTTACTATTCTTCCATTATTTNTCAGGCAACACCT : 780
 * 740 * 760 * 780

TrMDHc : CAAGCCAATCTGGGTGATGATACCCTTAAGGNTTAAACGGNANGGACACAAGATGGAGGA : 840
 * 800 * 820 * 840

TrMDHc : ACAGAAGTTGNGACCGCCAAGGCTGGAAAGGGTCTGCAACTTTGTCAATGGCTTATGCT : 900
 * 860 * 880 * 900

TrMDHc : GGAGCCATATTTGCTGATGCTNGCCTCAAAGGNCTGAATGGAGTTCCAGATGTTATTGAG : 960
 * 920 * 940 * 960

FIGURE 61

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TrMDHc : TGCTCATATGTGCAATCCAATATCATCTCTGACCTTCCTTTCTTTGCTTCCAAGGTGAGG : 1020

TrMDHc : ATTGGGAAGAATGGTGTGGAAGAAATCTGGGCTTAGGTTCTCTCACAGATTTTCGAGCAA : 1080

TrMDHc : CAAGGCCTTGAAAACCTCAAGGCTGAACTCAAATCATCTATTGAAAAGGGAATCAAATTT : 1140

TrMDHc : GCCTCCCAGTAATCGAACATGTCATACATTACTGGATTTTCCATTTAGAACCAGATCAA : 1200

TrMDHc : ATTTTGCAAATTCAGAACAATTGTTTGTAAATGTTGCCGGTAGGTATACCCCTAGATTTAA : 1260

TrMDHc : TAAGTAAATCTGCGAGAGCAGTTTATTGCTGCAGGGACTGAAATTAAAACCAGTTT TAGG : 1320

TrMDHc : TTGGCCTTTCCATTCGTAATGGCCCTTCATTGTTGCATGNTTTCATATAATGCAATTGAA : 1380

TrMDHc : GGGTGNTGGNCANCGATACACANCCCCC : 1408

FIGURE 61 (cont.)

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* 20 * 40 * 60
 TrMDHc : MRPSMLRSVQSAVSRASSHLTRRGYATEPVPERKVAILGAAGGIGQPLSLMLKLNPLVST : 60

* 80 * 100 * 120
 TrMDHc : LSLYDIAGTPGVAADVSHINSRSEVTGYAGEEELGKALEGADVVIIPAGVPRKPGMTRDD : 120

* 140 * 160 * 180
 TrMDHc : LFNINAGIVKSLATAISKYCPHALVNMISNPVNSTVPIAAEVFKKAGTYDEKRLFGVTTL : 180

* 200 * 220 * 240
 TrMDHc : DVVRAKTFYAGKAKVPVAEENVVPVIGGHAGVTILPLFXQATPQANLGDDTLKXLTXXTQD : 240

* 260 * 280 * 300
 TrMDHc : GGTEVXTAKAGKGSATLSMAYAGAI FADAXLKXLNGVDPVIECSYVQSNIISDL PFFASK : 300

* 320 * 340
 TrMDHc : VRIGKNGVEEILGLGSLTDFEQGLENLKAE LKSSIEKGIKFASQ : 345

FIGURE 62

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		*	20	*	40	*	60	
TrMDHc1	:	AAAGNGAATTGGAATNT	CGAC	CTCCATTCCNTACT	TTATTTCATTCATGGCTCTCTCTCT	:	60	
TrMDHc2	:	---GTTNATTGGAATATAC	CCCACTCCATTCCATACT	TTATTTCATTCATGGCTCTCTCTCT	:	59		
TrMDHc3	:	-----GNNCTC	CA	CACTCCCTTCCCTCTCTCTCT	:	42		
TrMDHc4	:	-----	-----	-----	-----	:	30	
TrMDHc5	:	-----	-----	-----	-----	:	27	
TrMDHc6	:	-----	-----	-----	-----	:	27	
TrMDHc7	:	-----	-----	-----	-----	:	27	
TrMDHc8	:	-----	-----	-----	-----	:	27	
TrMDHc9	:	-----	-----	-----	-----	:	25	
TrMDHc10	:	-----	-----	-----	-----	:	25	
TrMDHc11	:	-----	-----	-----	-----	:	-	
TrMDHc12	:	-----	-----	-----	-----	:	-	
TrMDHc13	:	-----	-----	-----	-----	:	-	
TrMDHc14	:	-----	-----	-----	-----	:	-	
TrMDHc15	:	-----	-----	-----	-----	:	-	
TrMDHc16	:	-----	-----	-----	-----	:	-	
TrMDHc17	:	-----	-----	-----	-----	:	-	
		*	80	*	100	*	120	
TrMDHc1	:	CTCTCTCTCTTTAT	TCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	122		
TrMDHc2	:	CTCTCTCTCT	T	TATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	119	
TrMDHc3	:	CTCTCTCTCTTTT	TATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	105		
TrMDHc4	:	CTCTCTCTCTCT	TATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	91		
TrMDHc5	:	CTCTCTCTC	TTTATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	88		
TrMDHc6	:	CTCTCTCTC	TTTATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	87		
TrMDHc7	:	CTCTCTCTCTTT	TATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	90		
TrMDHc8	:	CTCTCTCTCTTT	TATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	89		
TrMDHc9	:	CTCTCTCTCTTT	TATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	87		
TrMDHc10	:	CTCTCTCTC	TTTATTCTCGAAAAGCTTTTTCAGCCAACAACG	AGAGAATAATGAGGCCGTCTG	:	86		
TrMDHc11	:	-----	-----	-----	-----	:	48	
TrMDHc12	:	-----	-----	-----	-----	:	46	
TrMDHc13	:	-----	-----	-----	-----	:	48	
TrMDHc14	:	-----	-----	-----	-----	:	-	
TrMDHc15	:	-----	-----	-----	-----	:	-	
TrMDHc16	:	-----	-----	-----	-----	:	-	
TrMDHc17	:	-----	-----	-----	-----	:	-	
		*	140	*	160	*	180	
TrMDHc1	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	185			
TrMDHc2	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	182			
TrMDHc3	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	168			
TrMDHc4	:	ATGCTCAGATCTGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	154			
TrMDHc5	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	151			
TrMDHc6	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	150			
TrMDHc7	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	153			
TrMDHc8	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	152			
TrMDHc9	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	150			
TrMDHc10	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	149			
TrMDHc11	:	ATGCTCAGATCCGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	111			
TrMDHc12	:	ATGCTCAGATCTGTCC	ATCAGCCGTATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	108			
TrMDHc13	:	ATGCTCAGATCTGTCCAATCAGCCGT	ATCCGCGCCTCTCTCACCTAACCCGCCGTGGCTAT	:	111			
TrMDHc14	:	-----	-----	-----	-----	:	-	
TrMDHc15	:	-----	-----	-----	-----	:	-	
TrMDHc16	:	-----	-----	-----	-----	:	-	
TrMDHc17	:	-----	-----	-----	-----	:	-	

FIGURE 63

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	*	200	*	220	*	240	*	
TrMDHc1	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	248		
TrMDHc2	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	245		
TrMDHc3	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	231		
TrMDHc4	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	217		
TrMDHc5	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	214		
TrMDHc6	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	213		
TrMDHc7	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	216		
TrMDHc8	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	215		
TrMDHc9	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	213		
TrMDHc10	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	212		
TrMDHc11	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	174		
TrMDHc12	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	171		
TrMDHc13	:	GCTACCGAACCAGTTCAGAACGCAAGGTGGCCATTCTCGG	:	GCTGCCGGCGGGGATCGGACAG	:	174		
TrMDHc14	:	-----	:	-----	:	-		
TrMDHc15	:	-----	:	-----	:	-		
TrMDHc16	:	-----	:	-----	:	-		
TrMDHc17	:	-----	:	-----	:	-		
		260	*	280	*	300	*	
TrMDHc1	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	311				
TrMDHc2	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	308				
TrMDHc3	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	294				
TrMDHc4	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	280				
TrMDHc5	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	277				
TrMDHc6	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	276				
TrMDHc7	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	279				
TrMDHc8	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	278				
TrMDHc9	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	276				
TrMDHc10	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	275				
TrMDHc11	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	237				
TrMDHc12	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	234				
TrMDHc13	:	CCTCTCTCTCTTCTCATGAAGCTCAACCTCTCGTTTCAACCTATCTCTTTATGATATTGCT	:	237				
TrMDHc14	:	-----	:	-----	:	-		
TrMDHc15	:	-----	:	-----	:	-		
TrMDHc16	:	-----	:	-----	:	-		
TrMDHc17	:	-----	:	-----	:	-		
		320	*	340	*	360	*	3
TrMDHc1	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	374				
TrMDHc2	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	371				
TrMDHc3	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	357				
TrMDHc4	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	343				
TrMDHc5	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	340				
TrMDHc6	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	339				
TrMDHc7	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	342				
TrMDHc8	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	341				
TrMDHc9	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	339				
TrMDHc10	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	338				
TrMDHc11	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	300				
TrMDHc12	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	297				
TrMDHc13	:	GGAACCCCTGGTGTGCGCGCTGATGTCAGCCACATCAACTCCAGATCTGAGGTAAGTGGGTAT	:	300				
TrMDHc14	:	-----GNGTGTGCGCGCTGNNGTGTCAGCCACATCAACTCCAACTGA	:	54				
TrMDHc15	:	-----GNTGATGT-NGCC-CAT-AACTCC-GATCTGAGGTAAGTGGGTAT	:	41				
TrMDHc16	:	-----	:	-----	:	-		
TrMDHc17	:	-----	:	-----	:	-		

FIGURE 63 (cont.)

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	80	*	400	*	420	*	440	
TrMDHc1 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 437
TrMDHc2 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 434
TrMDHc3 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 420
TrMDHc4 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 406
TrMDHc5 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 403
TrMDHc6 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 402
TrMDHc7 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 405
TrMDHc8 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 404
TrMDHc9 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 402
TrMDHc10 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 401
TrMDHc11 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 363
TrMDHc12 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 360
TrMDHc13 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 363
TrMDHc14 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 117
TrMDHc15 :	GCAGGTGAAGAAGAGCTTGGAAAAGCTTTGGAGGGTGCTGATGTTGTTATAATTCCCTGCTGGT							: 104
TrMDHc16 :	-----							: -
TrMDHc17 :	-----							: -

	*	460	*	480	*	500	
TrMDHc1 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 500
TrMDHc2 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 497
TrMDHc3 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 483
TrMDHc4 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 469
TrMDHc5 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 466
TrMDHc6 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 465
TrMDHc7 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 468
TrMDHc8 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 467
TrMDHc9 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 465
TrMDHc10 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 464
TrMDHc11 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 426
TrMDHc12 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 423
TrMDHc13 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 426
TrMDHc14 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 180
TrMDHc15 :	GTGCCCAGAAAGCCTGGAATGACTCGTGATGATCTTTTCAATATTAACGCTGGCATTGTCAAG						: 167
TrMDHc16 :	-----						: -
TrMDHc17 :	-----						: -

	*	520	*	540	*	560	
TrMDHc1 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATG-----						: 537
TrMDHc2 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 560
TrMDHc3 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 546
TrMDHc4 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 532
TrMDHc5 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 529
TrMDHc6 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 528
TrMDHc7 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 531
TrMDHc8 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 530
TrMDHc9 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 528
TrMDHc10 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 527
TrMDHc11 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 489
TrMDHc12 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 486
TrMDHc13 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 489
TrMDHc14 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 243
TrMDHc15 :	TCACTTGCCACTGCTATTTCTAAGTACTGCCCCCATGCCCCCTTGTTAACATGATAAGCAACCCT						: 230
TrMDHc16 :	-----TTG-----						: 3
TrMDHc17 :	-----						: -

FIGURE 63 (cont.)

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	*	580	*	600	*	620	*	
TrMDHc1	:	-----		-----		-----		-
TrMDHc2	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGG		-----		-----		608
TrMDHc3	:	GTGAACTCCACCGTTCCCATTTGCTGCAGG		-----		-----		575
TrMDHc4	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGG		-----		-----		563
TrMDHc5	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATAT		-----		-----		583
TrMDHc6	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		591
TrMDHc7	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		594
TrMDHc8	:	GTGAACTCCACCGTTCCCATTTGCTGC		-----		-----		556
TrMDHc9	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		591
TrMDHc10	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		590
TrMDHc11	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		552
TrMDHc12	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		549
TrMDHc13	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		552
TrMDHc14	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		306
TrMDHc15	:	GTGAACTCCACCGTTCCCATTTGCTGCAGAGGTTTTCAAGAAGGCAGGGACATATGACGAGAAG		-----		-----		293
TrMDHc16	:	-----		-----		-----		-
TrMDHc17	:	-----		-----		-----		-
		640	*	660	*	680	*	
TrMDHc1	:	-----		-----		-----		-
TrMDHc2	:	-----		-----		-----		-
TrMDHc3	:	-----		-----		-----		-
TrMDHc4	:	-----		-----		-----		-
TrMDHc5	:	-----		-----		-----		-
TrMDHc6	:	AGATTGT		-----		-----		598
TrMDHc7	:	AGATTGTTGGGGTTACAACCCCTTGATGTAGTCAGGGCGAAAACTTTTCTATGCCGGGAAAGCT		-----		-----		657
TrMDHc8	:	-----		-----		-----		-
TrMDHc9	:	AGATTGTTGGGGTTACAACCCCTTGATGTAGTCAGGGCGAAAACTTTTCTATGCCGGGAAAGCT		-----		-----		654
TrMDHc10	:	AGATTGTTGGGGTTACAACCCCTTGATGTAGTCAGGGCGAAAACTTTTCTATGCCGGGAAAGCT		-----		-----		652
TrMDHc11	:	AGATTGTTGGGGTTACAACCCCTTG		-----		-----		577
TrMDHc12	:	AGATTGTTGGGGTTACAACCCCTTGATGTAGTCAGGGCGAAAACT		-----		-----		594
TrMDHc13	:	AGATTGTTGGGGTTACAACCCCTTGATGTAGTCAGGGCGAAAACTTTTCTATGCCGGGAAAGCT		-----		-----		615
TrMDHc14	:	AGATTGTTGGGGTTACAACCCCTTGATGTAGTCAGGGCGAAAACTTTTCTATGCCGGGAAAGCT		-----		-----		369
TrMDHc15	:	AGATTGTTGGGGTTACAACCCCTTGATGTAGTCAGGGCGAAAACTTTTCTATGCCGGGAAAGCT		-----		-----		356
TrMDHc16	:	-----		-----		-----		-
TrMDHc17	:	-----		-----		-----		-
		700	*	720	*	740	*	
TrMDHc1	:	-----		-----		-----		-
TrMDHc2	:	-----		-----		-----		-
TrMDHc3	:	-----		-----		-----		-
TrMDHc4	:	-----		-----		-----		-
TrMDHc5	:	-----		-----		-----		-
TrMDHc6	:	-----		-----		-----		-
TrMDHc7	:	AAAGTTCAGTTGCCGAGGTCAATGTACCTGTTTGGAGGCCATGCAGGAGTTACTATTNTT		-----		-----		720
TrMDHc8	:	-----		-----		-----		-
TrMDHc9	:	AAAGTTCAGTTGCCGAGGTCAATGTAC		-----		-----		682
TrMDHc10	:	AAAGTTCAGTTGCCGAGGTCAATGTACCTGTTTGGAGGCC-TGC-NGAG-TNCTATT-NI		-----		-----		711
TrMDHc11	:	-----		-----		-----		-
TrMDHc12	:	-----		-----		-----		-
TrMDHc13	:	AAAGTTCAGTTGCCGAGGTCAATGTACCTGTTTATAGGAGGCCATGCAGGAGTTACTATTCTN		-----		-----		678
TrMDHc14	:	AAAGTTCAGTTGCCGAGGTCAATGTACCTGTTTATAGGAGGCCATGCAGGAGTTACTATTCTC		-----		-----		432
TrMDHc15	:	AAAGTTCAGTTGCCGAGGTCAATGTACCTGTTTATAGGAGGCCATGCAGGAGTTACTATTCTC		-----		-----		419
TrMDHc16	:	-----		-----		-----		-
TrMDHc17	:	-----		-----		-----		-

FIGURE 63 (cont.)

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	760	*	780	*	800	*	82	
TrMDHc1	:	-----	:	-----	:	-----	:	-
TrMDHc2	:	-----	:	-----	:	-----	:	-
TrMDHc3	:	-----	:	-----	:	-----	:	-
TrMDHc4	:	-----	:	-----	:	-----	:	-
TrMDHc5	:	-----	:	-----	:	-----	:	-
TrMDHc6	:	-----	:	-----	:	-----	:	-
TrMDHc7	:	CCATTATTTTNTAAGG	:	AACACCTNAAGCCAATNTGGNTGATGA	:	AACCTTNAGGNTTTAACG	:	782
TrMDHc8	:	-----	:	-----	:	-----	:	-
TrMDHc9	:	-----	:	-----	:	-----	:	-
TrMDHc10	:	CCCTTTTITTTITAGG	:	GANNCCCT	:	NANCCANT	:	769
TrMDHc11	:	-----	:	-----	:	-----	:	-
TrMDHc12	:	-----	:	-----	:	-----	:	-
TrMDHc13	:	CCATTATTTTNTNAGGCAACACCTNAAGCCAATNTGGGTGANGATNCCCTTAAGGNTTTAACG	:	-----	:	-----	:	741
TrMDHc14	:	CCATTATTTTTCAGGCAACACCTCAAGCCAATCTGGATGATGATACCATTAAGGGTCTAACG	:	-----	:	-----	:	495
TrMDHc15	:	CCATTATTTTTCAGGCAACACCTCAAGCCAATCTGGATGATGATACCATTAAGGGTCTAACG	:	-----	:	-----	:	482
TrMDHc16	:	-----	:	-----	:	-----	:	-
TrMDHc17	:	-----	:	-----	:	-----	:	-
	0	*	840	*	860	*	880	
TrMDHc1	:	-----	:	-----	:	-----	:	-
TrMDHc2	:	-----	:	-----	:	-----	:	-
TrMDHc3	:	-----	:	-----	:	-----	:	-
TrMDHc4	:	-----	:	-----	:	-----	:	-
TrMDHc5	:	-----	:	-----	:	-----	:	-
TrMDHc6	:	-----	:	-----	:	-----	:	-
TrMDHc7	:	GNANGGGCNCAAGATGGCGGAACNGAA	:	TTGNGACCGCCAAGGCTT	:	-----	:	827
TrMDHc8	:	-----	:	-----	:	-----	:	-
TrMDHc9	:	-----	:	-----	:	-----	:	-
TrMDHc10	:	GG	:	NNGGCNCAAAANG	:	GGGAACAAAA	:	801
TrMDHc11	:	-----	:	-----	:	-----	:	-
TrMDHc12	:	-----	:	-----	:	-----	:	-
TrMDHc13	:	GNANGGACCCAAANANGGAGGAACANAANTTNNGACCCCCANGG	:	TGG	:	AAGGGTTNT	:	801
TrMDHc14	:	GGAAAGGACACAAGATGGAGGAACAGAAGTTCTGACCGCCAAGGCTGGAAAGGGTTCTGCAACT	:	-----	:	-----	:	558
TrMDHc15	:	GGAAAGGACACAAGATGGAGGAACAGAAGTTCTGACCGCCAAGGCTGGAAAGGGTTCTGCAACT	:	-----	:	-----	:	545
TrMDHc16	:	-----	:	-----	:	-----	:	-
TrMDHc17	:	-----	:	-----	:	-----	:	-
	*	900	*	920	*	940		
TrMDHc1	:	-----	:	-----	:	-----	:	-
TrMDHc2	:	-----	:	-----	:	-----	:	-
TrMDHc3	:	-----	:	-----	:	-----	:	-
TrMDHc4	:	-----	:	-----	:	-----	:	-
TrMDHc5	:	-----	:	-----	:	-----	:	-
TrMDHc6	:	-----	:	-----	:	-----	:	-
TrMDHc7	:	-----	:	-----	:	-----	:	-
TrMDHc8	:	-----	:	-----	:	-----	:	-
TrMDHc9	:	-----	:	-----	:	-----	:	-
TrMDHc10	:	-----	:	-----	:	-----	:	-
TrMDHc11	:	-----	:	-----	:	-----	:	-
TrMDHc12	:	-----	:	-----	:	-----	:	-
TrMDHc13	:	TT	:	NNAATGCN	:	-----	:	811
TrMDHc14	:	TTGTCAATGGCTTATGCTGGAGCCATATTTGCTGATGCTTGCCTCAAAGGTTCTGAATGGAGTT	:	-----	:	-----	:	621
TrMDHc15	:	TTGTCAATGGCT	:	-----	:	-----	:	557
TrMDHc16	:	-----	:	CTGNTGCTNGCCT	:	NANGGNCTGAATGGAGTT	:	34
TrMDHc17	:	-----	:	-----	:	GNNGTGT	:	7

FIGURE 63 (cont.)

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	*	960	*	980	*	1000	
TrMDHc1	:	-----	:	-----	:	-----	-
TrMDHc2	:	-----	:	-----	:	-----	-
TrMDHc3	:	-----	:	-----	:	-----	-
TrMDHc4	:	-----	:	-----	:	-----	-
TrMDHc5	:	-----	:	-----	:	-----	-
TrMDHc6	:	-----	:	-----	:	-----	-
TrMDHc7	:	-----	:	-----	:	-----	-
TrMDHc8	:	-----	:	-----	:	-----	-
TrMDHc9	:	-----	:	-----	:	-----	-
TrMDHc10	:	-----	:	-----	:	-----	-
TrMDHc11	:	-----	:	-----	:	-----	-
TrMDHc12	:	-----	:	-----	:	-----	-
TrMDHc13	:	-----	:	-----	:	-----	-
TrMDHc14	:	CCAGATGTTATTGAGTGCTCATATGTGCAATCCAATATCATCTCTGACCTT	:	-----	:	-----	684
TrMDHc15	:	-----	:	-----	:	-----	-
TrMDHc16	:	-CNGANGTTATTGAAGTCTCATATGTGCAATCCAATATCATCTCTGACCTTCCTTTCTTTGCT	:	-----	:	-----	96
TrMDHc17	:	CCAGATGTTATTGAGTGCT-NTATGTGC-AT-CNATAT-NTCTCTGACCTTCCTTTCTTTGCT	:	-----	:	-----	66
	*	1020	*	1040	*	1060	*
TrMDHc1	:	-----	:	-----	:	-----	-
TrMDHc2	:	-----	:	-----	:	-----	-
TrMDHc3	:	-----	:	-----	:	-----	-
TrMDHc4	:	-----	:	-----	:	-----	-
TrMDHc5	:	-----	:	-----	:	-----	-
TrMDHc6	:	-----	:	-----	:	-----	-
TrMDHc7	:	-----	:	-----	:	-----	-
TrMDHc8	:	-----	:	-----	:	-----	-
TrMDHc9	:	-----	:	-----	:	-----	-
TrMDHc10	:	-----	:	-----	:	-----	-
TrMDHc11	:	-----	:	-----	:	-----	-
TrMDHc12	:	-----	:	-----	:	-----	-
TrMDHc13	:	-----	:	-----	:	-----	-
TrMDHc14	:	TCCAAGGTGAGGATTGGGAANAATGGTGTGGGAANAAT	:	-----	:	-----	722
TrMDHc15	:	-----	:	-----	:	-----	-
TrMDHc16	:	TCCAAGGNNNGGATTGGGAAGAATGGTGTGGAAGAGATTCTG	:	-----	:	-----	138
TrMDHc17	:	TCC-AGGTGAGGATTGGGAAGAATGGTGTGGAAGAAATTCCTGGGCTTAGGTTCTCTCACAGAT	:	-----	:	-----	128
		1080	*	1100	*	1120	*
TrMDHc1	:	-----	:	-----	:	-----	-
TrMDHc2	:	-----	:	-----	:	-----	-
TrMDHc3	:	-----	:	-----	:	-----	-
TrMDHc4	:	-----	:	-----	:	-----	-
TrMDHc5	:	-----	:	-----	:	-----	-
TrMDHc6	:	-----	:	-----	:	-----	-
TrMDHc7	:	-----	:	-----	:	-----	-
TrMDHc8	:	-----	:	-----	:	-----	-
TrMDHc9	:	-----	:	-----	:	-----	-
TrMDHc10	:	-----	:	-----	:	-----	-
TrMDHc11	:	-----	:	-----	:	-----	-
TrMDHc12	:	-----	:	-----	:	-----	-
TrMDHc13	:	-----	:	-----	:	-----	-
TrMDHc14	:	-----	:	-----	:	-----	-
TrMDHc15	:	-----	:	-----	:	-----	-
TrMDHc16	:	-----	:	-----	:	-----	-
TrMDHc17	:	TTGAGCAACAAGGCCTTGAAAACCTCAAGGCTGAACTCAAATCATCTATTGAAAAGGGAATC	:	-----	:	-----	191

FIGURE 63 (cont.)

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	1140	*	1160	*	1180	*	1	
TrMDHc1	:	-----						:
TrMDHc2	:	-----						:
TrMDHc3	:	-----						:
TrMDHc4	:	-----						:
TrMDHc5	:	-----						:
TrMDHc6	:	-----						:
TrMDHc7	:	-----						:
TrMDHc8	:	-----						:
TrMDHc9	:	-----						:
TrMDHc10	:	-----						:
TrMDHc11	:	-----						:
TrMDHc12	:	-----						:
TrMDHc13	:	-----						:
TrMDHc14	:	-----						:
TrMDHc15	:	-----						:
TrMDHc16	:	-----						:
TrMDHc17	:	AAATTTCCTCCCAGTAATCGAACATGTCATACATTACTGGATTTTCCATTTAGAACCAGAT						: 254

	200	*	1220	*	1240	*	1260	
TrMDHc1	:	-----						:
TrMDHc2	:	-----						:
TrMDHc3	:	-----						:
TrMDHc4	:	-----						:
TrMDHc5	:	-----						:
TrMDHc6	:	-----						:
TrMDHc7	:	-----						:
TrMDHc8	:	-----						:
TrMDHc9	:	-----						:
TrMDHc10	:	-----						:
TrMDHc11	:	-----						:
TrMDHc12	:	-----						:
TrMDHc13	:	-----						:
TrMDHc14	:	-----						:
TrMDHc15	:	-----						:
TrMDHc16	:	-----						:
TrMDHc17	:	CAAATTTTGCAAATTCAGAACAAATTGTTTGTAATGTTGCCGGTAGGTATACCCCTAGATTTAA						: 317

	*	1280	*	1300	*	1320	
TrMDHc1	:	-----					:
TrMDHc2	:	-----					:
TrMDHc3	:	-----					:
TrMDHc4	:	-----					:
TrMDHc5	:	-----					:
TrMDHc6	:	-----					:
TrMDHc7	:	-----					:
TrMDHc8	:	-----					:
TrMDHc9	:	-----					:
TrMDHc10	:	-----					:
TrMDHc11	:	-----					:
TrMDHc12	:	-----					:
TrMDHc13	:	-----					:
TrMDHc14	:	-----					:
TrMDHc15	:	-----					:
TrMDHc16	:	-----					:
TrMDHc17	:	TAAGTAAATCTGCGAGAGCAGTTTATTGCTGCAGGGACTGAAATTAAAAACCAGTTTATAGGTTG					: 380

FIGURE 63 (cont.)

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	*	1340	*	1360	*	1380		
TrMDHc1	:	-----		-----		-----	:	-
TrMDHc2	:	-----		-----		-----	:	-
TrMDHc3	:	-----		-----		-----	:	-
TrMDHc4	:	-----		-----		-----	:	-
TrMDHc5	:	-----		-----		-----	:	-
TrMDHc6	:	-----		-----		-----	:	-
TrMDHc7	:	-----		-----		-----	:	-
TrMDHc8	:	-----		-----		-----	:	-
TrMDHc9	:	-----		-----		-----	:	-
TrMDHc10	:	-----		-----		-----	:	-
TrMDHc11	:	-----		-----		-----	:	-
TrMDHc12	:	-----		-----		-----	:	-
TrMDHc13	:	-----		-----		-----	:	-
TrMDHc14	:	-----		-----		-----	:	-
TrMDHc15	:	-----		-----		-----	:	-
TrMDHc16	:	-----		-----		-----	:	-
TrMDHc17	:	GCCCTTCCATTCGTAATGGCCCTTCATTGTTGCATGNTTTCATATAATGCAATTGAAGGGTGN					:	443

	*	1400		
TrMDHc1	:	-----	:	-
TrMDHc2	:	-----	:	-
TrMDHc3	:	-----	:	-
TrMDHc4	:	-----	:	-
TrMDHc5	:	-----	:	-
TrMDHc6	:	-----	:	-
TrMDHc7	:	-----	:	-
TrMDHc8	:	-----	:	-
TrMDHc9	:	-----	:	-
TrMDHc10	:	-----	:	-
TrMDHc11	:	-----	:	-
TrMDHc12	:	-----	:	-
TrMDHc13	:	-----	:	-
TrMDHc14	:	-----	:	-
TrMDHc15	:	-----	:	-
TrMDHc16	:	-----	:	-
TrMDHc17	:	TGGNCANCGATACACANCCCCC	:	465

FIGURE 63 (cont.)

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TrMDHd : GGGTAGGCGGAGATTTTNAACCCATTTTCCTCTTAAATCTCTCTCAACTTCTCTTTCCATT : 60

TrMDHd : CCCATTACCATTTCATTCCCAGAGGTCGAGATGGCAGCATCAGCAGCAGCTACTTTTACTA : 120

TrMDHd : TTGGAAGTGGCCAAACAGGGAGGCCACTTCCTCAATCAAACCCTTTTGGTTTGAAAGTCA : 180

TrMDHd : ATTCCCAGGTTAATTTTAAGACCTTCTCTGGTCTCAAGGCCATGTCATCTCTAAGATGCG : 240

TrMDHd : AGTCTGAATCATCTTTCTTTGGCAACGAACTAGTGCTGCTCTGCGTGCAACTTTTGCAC : 300

TrMDHd : CCAAAGCTCAAAAGGAAAACCAAACATCAACCGCAATTGTCATCCTCAGGCATCCTACA : 360

TrMDHd : AAGTGGCGGTTCTTGGTGCTGCAGGAGGAATTGGTCAGCCACTGGCACTTCTCATTAAGA : 420

TrMDHd : TGTGCGCCTTTGGTTTCCGACCTGCATCTTTATGATATCGCGAATGTTAAGGGAGTTGCTG : 480

TrMDHd : CTGATATCAGTCATTGCAACACTCCTTCAAAGGTTTTGGATTTCACAGGTGCTTCTGAGT : 540

TrMDHd : TGGCAAATTGTTTGAAAGGTGTGGATGTAGTTGTTATACCTGCTGGTGTTCAGAAA : 598

FIGURE 64

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TrMDHd : MAASAAATFTIGTAQTGRPLPQSNPFGLKVNSQVNFKTFSGLKAMSSLRCESESSFFGNE : 60

TrMDHd : TSAALRATFAPKAQKENQNINRNLHPQASYKVAVLGAAGGIGQPLALLIKMSPLVSDLHL : 120

TrMDHd : YDIANVKGVAADISHCNTPSKVLDFTGASELANCLKGVDVVVIPAGVPR : 169

FIGURE 65

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	* 20 * 40 * 60	
TrMDHd1 :	CNGTAGGCGGAGATTNAACCCATTTTCCTCTTAAATCTCTCTNAACTTCTCTTTCCATT	: 60
TrMDHd2 :	-GCTAGGCGGAGATTNAACCCATTTTCCTCTTAAATCTCTCTC- <u>ACTTCTCTTTCCATT</u>	: 58
TrMDHd3 :	-----GGGAGATTNAACCCATTTTCCTCTTAAATCTCTC-CCACTTCTCTTCCATT	: 52
	* 80 * 100 * 120	
TrMDHd1 :	CCCATTACCATTTCATTCCCAGAGGTCGAGATGGCAGCATCAGCAGCAGCTACTTTTACTA	: 120
TrMDHd2 :	CCCATTACCATTTCATTCCCAGAGGTCGAGATGGCAGCATCAGCAGCAGCTACTTTTACTA	: 118
TrMDHd3 :	CCCATTACCATTTCATTCCCAGAGGTCGAGATGGCAGCATCAGCAGCAGCTACTTTTACTA	: 112
	* 140 * 160 * 180	
TrMDHd1 :	TTGGAAGTGGCCAAACAGGGAGGCCACTTCCTCAATCAAACCCTTTGGTTTGAAAGTCA	: 180
TrMDHd2 :	TTGGAAGTGGCCAAACAGGGAGGCCACTTCCTCAATCAAACCCTTTGGTTTGAAAGTCA	: 178
TrMDHd3 :	TTGGAAGTGGCCAAACAGGGAGGCCACTTCCTCAATCAAACCCTTTGGTTTGAAAGTCA	: 172
	* 200 * 220 * 240	
TrMDHd1 :	ATTCCCAGGTTAATTTTAAGACCTTCTCTGGTCTCAAGGCCATGTCATCTCTAAGATGCG	: 240
TrMDHd2 :	ATTCCCAGGTTAATTTTAAGACCTTCTCTGGTCTCAAGGCCATGTCATCTCTAAGATGCG	: 238
TrMDHd3 :	ATTCCCAGGTTAATTTTAAGACCTTCTCTGGTCTCAAGGCCATGTCCTCTCTAAGATGCG	: 232
	* 260 * 280 * 300	
TrMDHd1 :	AGTCTGAATCATCTTTCTTTGGCAACGAAACTAGTGCTGCTCTGCGTGCAACTTTTGAC	: 300
TrMDHd2 :	AGTCTGAATCATCTTTCTTTGGCAACGAAACTAGTGCTGCTCTGCGTGCAACTTTTGAC	: 298
TrMDHd3 :	AGTCTGAATCATCTTTCTTTGGCAACGAAACTGTGCTGCTCTGCGTGCAACTTTTGAC	: 292
	* 320 * 340 * 360	
TrMDHd1 :	CCAAAGCTCAAAAGGAAAACCAAAACATCAACCGCAATTTGCATCCTCAGGCATCCTACA	: 360
TrMDHd2 :	CCAAAGCTCAAAAGGAAAACCAAAACATCAACCGCAATTTGCATCCTCAGGCATCCTACA	: 358
TrMDHd3 :	CCAAAGCTCAAAAGGAAAACCAAAACATCAACCGCAATTTGCATCCTCAGGCATCCTACA	: 352
	* 380 * 400 * 420	
TrMDHd1 :	AAGTGGCGGTTCTTGGTGCTGCAGGAGGAATTGGTCAGCCACTGGCACTTCTCATTAAGA	: 420
TrMDHd2 :	AAGTGGCGGTTCTTGGTGCTGCAGGAGGAATTGGTCAGCCACTGGCACTTCTCATTAAGA	: 418
TrMDHd3 :	AAGTGGCGGTTCTGGTGCTGCAGGAGGAATTGGTCAGCCACTGGCACTTCTCATTAAGA	: 412
	* 440 * 460 * 480	
TrMDHd1 :	TGTCGCCTTTGGTTTCCGACCTGCATCTTTATGATATCGCGAATGTTAAGGGAGTTGCTG	: 480
TrMDHd2 :	TGTCGCCTTTGGTTTCCGACCTGCATCTTTATGATATCGCGAATGTTAAGGGAGTTGCTG	: 478
TrMDHd3 :	TGTCGCCTTTGGTTTCCGACCTGCATCTTTATGATATCGCGAATGTTAAGGGAGTTGCTG	: 472
	* 500 * 520 * 540	
TrMDHd1 :	CTGATATCAGTCATTGCAACACTCCTTCAAAGGTTTGGATTTCACAGGTGCTTCTGAGT	: 540
TrMDHd2 :	CTGATATCAGTCATTGCAACACTCCTTCAAAGGTTTGGATTTCACAGGTGCTTCTGAGT	: 538
TrMDHd3 :	CTGATATCAGTCATTGCAACACTCCTTCAAAGGTTTGGATTTCACAGGTGCTTCTGAGC	: 532
	* 560 * 580 * 600	
TrMDHd1 :	TGGCAAATTGTTTG-----	: 554
TrMDHd2 :	TGGCAAATTGTTTGAAAGGTGTGGATGTAGTTGTTATACCTGCTGGTGTTCACAG	: 593
TrMDHd3 :	TGGCAAATTGTTTGAAAGGTGTGGATGTGTTGTTATACCTGCTGGTGTTCACAG	: 590

FIGURE 66

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TrMDHe : TTNTNTTTATTTTATGTTTTCNCCTCCTACATATAACTCTTNACTTNGCATACACTGTG : 60
 * 20 * 40 * 60

TrMDHe : TCTCTCAATTATTATTAGTCCTTAGAAATGGAAGCACATGCAGCTGGAGCCAATCAGAGG : 120
 * 80 * 100 * 120

TrMDHe : ATTGCAAGAATCTCTGCTCATCTTCAACCTCCAAATTTCCAGGAAGGAGGTGATGTTGCA : 180
 * 140 * 160 * 180

TrMDHe : ATTAGCAAAGCTAACTGCAGAGCAAAGGTGGGGCGCCGGGATTCAAAGTAGCAATCTTG : 240
 * 200 * 220 * 240

TrMDHe : GGGGCTGCTGGTGGAATTGGTCAATCCCTTTCTTTGCTGTTGAAGATCAATCCATTGGTT : 300
 * 260 * 280 * 300

TrMDHe : TCAGTTCTTCATCTTTATGATGTTGTCAACACTCCTGGTGTCACTGCTGATGTTAGTCAC : 360
 * 320 * 340 * 360

TrMDHe : ATTGACACCGGTGCTGTGGTTTCGTGGCTTTCTAGGGCAGGCACAACCTTGAGAATGCACTT : 420
 * 380 * 400 * 420

TrMDHe : ACAGGCATGGACTTGGTTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG : 480
 * 440 * 460 * 480

TrMDHe : GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG : 540
 * 500 * 520 * 540

TrMDHe : AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT : 600
 * 560 * 580 * 600

TrMDHe : GCTGCTGAGGTTTTCAGAAAGCCGGTACATATGATCCAAAGCGACTTTTAGGGGTTACA : 660
 * 620 * 640 * 660

TrMDHe : ACCCTCGATGTTGTGAGGGCAAATACCTTTGTGGCAGAAGTACTTGGTGTGATCCAAGA : 720
 * 680 * 700 * 720

TrMDHe : GAGGTTGATGTTCCAGTGGTAGGAGGGCACGCAGGAGTCACAAATATTACCTCTTTTGTCA : 780
 * 740 * 760 * 780

TrMDHe : CAGGTTAAGCCTCCAGTAGCTTCACCGCAGAAGAAACCGAATACCTGACAAANCGCATT : 840
 * 800 * 820 * 840

TrMDHe : CAAAANGGCGGAACACAAGTTGTTGAGGCAAAGGCTGGGGCTGGTTCGGCAACACTANTN : 900
 * 860 * 880 * 900

TrMDHe : ATGGCCTATGCAGCTGCCAAGTTTGCTAACGCATGCCTCCGTGGCTTGAAAGGAGAAGCC : 960
 * 920 * 940 * 960

FIGURE 67

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TrMDHe : GGGATAGTGGAGTGTGCTTTTGTGATTCTCAGGTTACGGAACTTCCTTTCTTTGCAGCC : 1020

TrMDHe : AAGGTTTCGTCTTGGTCGCGGTGGAGCAGAAGAGATATATCAACTTGGTCCCCTTAATGAG : 1080

TrMDHe : TATGAGAGGATTGGATTAGAAAAAGCGAAGAAAGAGTTAGCAGGAAGCATCCAGAAGGGA : 1140

TrMDHe : GTAGAATTCATCAAAAAAAAAANAAAGATAAGGAAAAATTAGTTTTGTATTGNCTCTTTCT : 1200

TrMDHe : ATATCTATAAAGAACTTGTGTAATAATTCC : 1230

FIGURE 67 (cont.)

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TrMDHe : MEAHAAGANQRIARISAHLPNPFQEGGDVAISKANCRAKGGAPGFKVAILGAAGGIGQS : 60

TrMDHe : LSLLLKINPLVSVLHLYDVVNTPGVTADVSHIDTGAVVRGFLGQAQLENALTGMDLVVIP : 120

TrMDHe : AGVPRKPGMTRDDLFKINAGIVRTLSEGIKSCPNNAIVNLISNPVNSTVPIAAEVFKKAG : 180

TrMDHe : TYDPKRLLGVTTLDVVRANTFVAEVLGVDPREVDVPVVGGHAGVTILPLLSQVKPPSSFT : 240

TrMDHe : ABETEYLTXRIQXGGTQVVEAKAGAGSATLMAYAAAKFANACLRGLKGEAGIVECAFVDS : 300

TrMDHe : QVTELPFFAAKVRLGRGGAEEIYQLGPLNEYERIGLEKAKKELAGSIQKGVEFIKKKXR : 359

FIGURE 68

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		*	20	*	40	*	60	
TrMDHe1	:	TTNTNTTTATTTTATGTTTTTNCCTCCTACATATAACTCTTNACTTNGCATACACTGTG	:	60				
TrMDHe2	:	-----GNG	:	3				
TrMDHe3	:	-----GTG	:	3				
TrMDHe4	:	-----	:	-				
TrMDHe5	:	-----	:	-				
TrMDHe6	:	-----	:	-				
TrMDHe7	:	-----	:	-				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

		*	80	*	100	*	120	
TrMDHe1	:	TCTCT-AATTATTATTAGTCCTTGAAATGGAAGCACATGCAGCTGGTACCAATCAGAGG	:	119				
TrMDHe2	:	TCTCTCAATTATTATTAGTCCTTAGAAATGGAAGCACATGCAGCTGGTGCCAATCAGAGG	:	63				
TrMDHe3	:	TCTCTCAATTATTATTAGTCCTTAGAAATGGAAGCACATGCAGCTGGAGCCAATCAGAGG	:	63				
TrMDHe4	:	-----GAGTCCTTANAAATGGAAGCACATGCAGCTGGAGCCATC-GAGG	:	44				
TrMDHe5	:	-----GAGAAATGGAAGCACATGCAGCTGGAGCCAATCAGAGG	:	38				
TrMDHe6	:	-----CGANTGCAGCTGGTGCCANTNNAGG	:	26				
TrMDHe7	:	-----	:	-				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

		*	140	*	160	*	180	
TrMDHe1	:	ATTGCAAGAATCTCTGCTCATCTTCAGCCTCCAAATTTCCAGGAAGGAGGTGATGTTGCA	:	179				
TrMDHe2	:	ATTGCAAGAATCTCTGCTCATCTTCAACCTCCAAATTTCCAGGAAGGAGGTGATGTTGCA	:	123				
TrMDHe3	:	ATTGCAAGAATCTCTGCTCATCTTCAACCTCCAAATTTCCAGGAAGGAGGTGATGTTGCA	:	123				
TrMDHe4	:	ATTGCAAGAATCTCTGCTCATCTTCAGCCTCCAAATTTCCAGGAAGGAGGTGATGTTGCA	:	103				
TrMDHe5	:	ATTGCAAGAATCTCTGCTCATCTTCAACCTCCAAATTTCCAGGAAGGAGGTGATGTTGCA	:	98				
TrMDHe6	:	ATTGC-AGAATCTCTGCTCATCTT-NACCTCC-AATTTCCAGGAAGGAGGTGATGTTGCA	:	83				
TrMDHe7	:	-----	:	-				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

		*	200	*	220	*	240	
TrMDHe1	:	ATTAGCAAAGCTAACTGCAGAGCAAAAGGTGGGGCGCCGGGATTCAAAGTAGCAATCTTG	:	239				
TrMDHe2	:	ATTAGCAAAGCTAACTGCAGAGCAAAAGGTGGGGCGCCGGGATTCAAAGTAGCAATCTTG	:	183				
TrMDHe3	:	ATTAGCAAAGCTAACTGCAGAGCAAAAGGTGGGGCGCCGGGATTCAAAGTAGCAATCTTG	:	183				
TrMDHe4	:	ATTAGCAAAGCTAACTGCAGAGCAAAAGGTGGGGCGCCGGGATTCAAAGTAGCAATCTTG	:	163				
TrMDHe5	:	ATTAGCAAAGCTAACTGCAGAGCAAAAGGTGGGGCGCCGGGATTCAAAGTAGCAATCTTG	:	158				
TrMDHe6	:	ATTAGCAAAGCTAACTGCAGAGCAAAAGGTGGGGCGCCGGGATTCAAAGTAGCAATCTTG	:	143				
TrMDHe7	:	-----	:	-				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

FIGURE 69

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		*	260	*	280	*	300	
TrMDHe1	:	GGGGCTGCTGGTGGAAATTGGTCAATCCCTTTCTTTGCTGTTGAAGATCAATCCATTGGTT	:	299				
TrMDHe2	:	GGGGCTGCTGGTGGAAATTGGTCAATCCCTTTCTTTGCTGTTGAAGATCAATCCATTGGTT	:	243				
TrMDHe3	:	GGGGCTGCTGGTGGAAATTGGTCAATCCCTTTCTTTGCTGTTGAAGATCAATCCATTGGTT	:	243				
TrMDHe4	:	GGGGCTGCTGGTGGAAATTGGTCAATCCCTTTCTTTGCTGTTGAAGATCAATCCATTGGTT	:	223				
TrMDHe5	:	GGGGCTGCTGGTGGAAATTGGTCAATCCCTTTCTTTGCTGTTGAAGATCAATCCATTGGTT	:	218				
TrMDHe6	:	GGGGCTGCTGGTGGAAATTGGTCAATCCCTTTCTTTGCTGTTGAAGATCAATCCATTGGTT	:	203				
TrMDHe7	:	-----	:	-				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

		*	320	*	340	*	360	
TrMDHe1	:	TCAGTTCTTCATCTTTATGATGTTGTCAACACTCCTGGTGTCACTGCTGATGTTAGTCAC	:	359				
TrMDHe2	:	TCAGTTCTTCATCTTTATGATGTTGTCAACACTCCTGGTGTCACTGCTGATGTTAGTCAC	:	303				
TrMDHe3	:	TCAGTTCTTCATCTTTATGATGTTGTCAACACTCCTGGTGTCACTGCTGATGTTAGTCAC	:	303				
TrMDHe4	:	TCAGTTCTTCATCTTTATGATGTTGTCAACACTCCTGGTGTCACTGCTGATGTTAGTCAC	:	283				
TrMDHe5	:	TCAGTTCTTCATCTTTATGATGTTGTCAACACTCCTGGTGTCACTGCTGATGTTAGTCAC	:	278				
TrMDHe6	:	TCAGTTCTTCATCTTTATGATGTTGTCAACACTCCTGGTGTCACTGCTGATGTTAGTCAC	:	263				
TrMDHe7	:	-----	:	-				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

		*	380	*	400	*	420	
TrMDHe1	:	ATTGACACCGGTGCTGTGGTTCGTGGCTTTCTAGGGCAGGCACAACCTTGAGAATGCACTT	:	419				
TrMDHe2	:	ATTGACACCGGTGCTGTGGTTCGTGGCTTTCTAGGGCAGGCACAACCTTGAGAATGCACTT	:	363				
TrMDHe3	:	ATTGACACCGGTGCTGTGGTTCGTGGCTTTCTAGGGCAGGCACAACCTTGAGAATGCACTT	:	363				
TrMDHe4	:	ATTGACACCGGTGCTGTGGTTCGTGGCTTTCTAGGGCAGGCACAACCTTGAGAATGCACTT	:	343				
TrMDHe5	:	ATTGACACCGGTGCTGTGGTTCGTGGCTTTCTAGGGCAGGCACAACCTTGAGAATGCACTT	:	338				
TrMDHe6	:	ATTGACACCGGTGCTGTGGTTCGTGGCTTTCTAGGGCAGGCACAACCTTGAGAATGCACTT	:	323				
TrMDHe7	:	-----GTTTCAACTTGAGAATGCACTT	:	22				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

		*	440	*	460	*	480	
TrMDHe1	:	ACAGGCATGGACTTGGTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG	:	479				
TrMDHe2	:	ACAGGCATGGACTTGGTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG	:	423				
TrMDHe3	:	ACAGGCATGGACTTGGTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG	:	423				
TrMDHe4	:	ACAGGCATGGACTTGGTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG	:	403				
TrMDHe5	:	ACAGGCATGGACTTGGTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG	:	398				
TrMDHe6	:	ACAGGCATGGACTTGGTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG	:	383				
TrMDHe7	:	ACAGGCATGGACTTGGTCGTTATACCTGCTGGTGTGCCGAGGAAACCTGGAATGACAAGG	:	82				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

		*	500	*	520	*	540	
TrMDHe1	:	GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG	:	539				
TrMDHe2	:	GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG	:	483				
TrMDHe3	:	GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG	:	483				
TrMDHe4	:	GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG	:	463				
TrMDHe5	:	GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG	:	458				
TrMDHe6	:	GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG	:	443				
TrMDHe7	:	GATGACTTATTTAAGATAAATGCTGGAATTGTGAGGACTCTTAGCGAAGGAATTGCCAAG	:	142				
TrMDHe8	:	-----	:	-				
TrMDHe9	:	-----	:	-				
TrMDHe10	:	-----	:	-				

FIGURE 69 (cont.)

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				*	560	*	580	*	600	
TrMDHe1	:	AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT	:	599						
TrMDHe2	:	AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT	:	543						
TrMDHe3	:	AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT	:	543						
TrMDHe4	:	AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT	:	523						
TrMDHe5	:	AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT	:	518						
TrMDHe6	:	AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT	:	503						
TrMDHe7	:	AGCTGTCCTAATGCAATTGTCAACTTGATTAGCAATCCAGTGAATTCCACTGTGCCAATT	:	202						
TrMDHe8	:	-----	:	-						
TrMDHe9	:	-----	:	-						
TrMDHe10	:	-----	:	-						
				*	620	*	640	*	660	
TrMDHe1	:	GCTGCTGAGGTTTTCAAGAAAGCCGGTACATATGATCCAAAGCGACTTTTANGGGTAACA	:	659						
TrMDHe2	:	GCTGCTGAGGTTTTCAAGAAAGCCGGTACAT-----	:	574						
TrMDHe3	:	GCTGCTGAGGTTTCAAGAAAGCCGGTACATAT-----	:	576						
TrMDHe4	:	GCTGCTGAGGTTTCAAGAAAGCCGGTACATATGATCCAAAGCGACTTTTAGCGTTACA	:	583						
TrMDHe5	:	GCTGCTGAGGTTTCAAGAAAGCCGGTACATATGATCCAAAGCGACTTTTAGGGTTACA	:	578						
TrMDHe6	:	GCTGCTGAGGTTTTCAAGAAAGCCGGTACATATGATCCAAAGCGACTTTTAG-----	:	555						
TrMDHe7	:	GCTGCTGAGGTTTTCAAGAAAGCCGGTACATATGATCCAAAGCGACTTTTAGGGGTACA	:	262						
TrMDHe8	:	-----TATGATCC-ACGCGACTTTTAGG-GGTACA	:	28						
TrMDHe9	:	-----	:	-						
TrMDHe10	:	-----	:	-						
				*	680	*	700	*	720	
TrMDHe1	:	ACCCTCGATGNTGT-----	:	673						
TrMDHe2	:	-----	:	-						
TrMDHe3	:	-----	:	-						
TrMDHe4	:	ACCCTCGATG-----	:	593						
TrMDHe5	:	ACCCTNGATGTTGNGAGGGCAAATACCTTTGTGGCANAAG-NCTTGGNGTTGANCCGAAA	:	637						
TrMDHe6	:	-----	:	-						
TrMDHe7	:	ACCCTCGATGTTGTGAGGGCAAATACCTTTGTGGCAGAAGTACTTGGTGTGATCCAAGA	:	322						
TrMDHe8	:	ACCCTCGATGTTGTGAGGGCAAATACCTTTGTGGCAGAAGTACTTGGTGTGATCCAAGA	:	88						
TrMDHe9	:	-----	:	-						
TrMDHe10	:	-----	:	-						
				*	740	*	760	*	780	
TrMDHe1	:	-----	:	-						
TrMDHe2	:	-----	:	-						
TrMDHe3	:	-----	:	-						
TrMDHe4	:	-----	:	-						
TrMDHe5	:	NAGGGTNATNTTCCANTGGTAGGAGGGCCCGCNGGANT-ACAANATTACC-CTTTTTFT	:	693						
TrMDHe6	:	-----	:	-						
TrMDHe7	:	GAGGTTGATGTTCCAGNGGTAGGATGGCACGCANGAGT-ACAATATTACCTCTTTTGTCA	:	381						
TrMDHe8	:	GAGGTTGATGTTCCAGTGGTAGGAGGGCACGCAGGAGTCACAATATTACCTCTTTTGTCA	:	148						
TrMDHe9	:	-----	:	-						
TrMDHe10	:	-----	:	-						
				*	800	*	820	*	840	
TrMDHe1	:	-----	:	-						
TrMDHe2	:	-----	:	-						
TrMDHe3	:	-----	:	-						
TrMDHe4	:	-----	:	-						
TrMDHe5	:	-----	:	-						
TrMDHe6	:	-----	:	-						
TrMDHe7	:	CAGGTTAAGCCTNCCAGTANCTT-ACCGNAGAANAACCGAATACCTGACANANCGNATT	:	440						
TrMDHe8	:	CAGGTTAAGCCTCCCAGTAGCTTCACATGCAGAGAAGAACCGAATACCTGACAAATCGCATT	:	208						
TrMDHe9	:	-----	:	-						
TrMDHe10	:	-----	:	-						

FIGURE 69 (cont.)

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	*	860	*	880	*	900	
TrMDHe1 :	-----		-----		-----		-
TrMDHe2 :	-----		-----		-----		-
TrMDHe3 :	-----		-----		-----		-
TrMDHe4 :	-----		-----		-----		-
TrMDHe5 :	-----		-----		-----		-
TrMDHe6 :	-----		-----		-----		-
TrMDHe7 :	-----		-----		-----		-
TrMDHe8 :	-----	CAAAANGGCGGAACACAAGTGGTTGAGGCAAAG	-----		-----		473
TrMDHe9 :	-----	CAAAAAGGCGGAACACAAGTGGTTGAGGCAAAGGCTGGGGCTGGTTCGGCAACACTANTA	-----		-----		268
TrMDHe10 :	-----	-----	CTTGGTTGAGGCAAAGGCTGGGGCTGGTTCGGCAACACTANTN	-----	-----		42
TrMDHe10 :	-----	-----	TTGGTTGAGGCAAAGGCTGGGGCTGGTTCGG-NAC-CT-NTN	-----	-----		38

	*	920	*	940	*	960	
TrMDHe1 :	-----		-----		-----		-
TrMDHe2 :	-----		-----		-----		-
TrMDHe3 :	-----		-----		-----		-
TrMDHe4 :	-----		-----		-----		-
TrMDHe5 :	-----		-----		-----		-
TrMDHe6 :	-----		-----		-----		-
TrMDHe7 :	-----		-----		-----		-
TrMDHe8 :	-----	ATGGCCTATGCAGCTGCCAAGTTTGCTAACGCATGCCTCCGTGGCTTGAAAGGAGAAGCC	-----		-----		328
TrMDHe9 :	-----	ATGGCCTATGCAGCTGCCAAGTTTGCTAACGCATGCCTCCGTGGCTTGAAAGGAGAAGCC	-----		-----		102
TrMDHe10 :	-----	ATGGCCTATGCAGCTGCC-AGTTTGCTAACGCATGCCTCCGTGGCTTGAAAGGAGAAGCC	-----		-----		97

	*	980	*	1000	*	1020	
TrMDHe1 :	-----		-----		-----		-
TrMDHe2 :	-----		-----		-----		-
TrMDHe3 :	-----		-----		-----		-
TrMDHe4 :	-----		-----		-----		-
TrMDHe5 :	-----		-----		-----		-
TrMDHe6 :	-----		-----		-----		-
TrMDHe7 :	-----		-----		-----		-
TrMDHe8 :	-----	GGGATAGTGGAGTGTGCTTTTGGTTGATTCTCAGGTTACGGAACCTTCCTTTCTTTGCAGCC	-----		-----		388
TrMDHe9 :	-----	GGGATAGTGGAGTGTGCTTTTGGTTGATTCTCAGGTTACGGAACCTTCCTTTCTTTGCAGCC	-----		-----		162
TrMDHe10 :	-----	GGGATAGTGGAGTGTGCTTTTGGTTGATTCTCAGGTTACGGAACCTTCCTTTCTTTGCAGCC	-----		-----		157

	*	1040	*	1060	*	1080	
TrMDHe1 :	-----		-----		-----		-
TrMDHe2 :	-----		-----		-----		-
TrMDHe3 :	-----		-----		-----		-
TrMDHe4 :	-----		-----		-----		-
TrMDHe5 :	-----		-----		-----		-
TrMDHe6 :	-----		-----		-----		-
TrMDHe7 :	-----		-----		-----		-
TrMDHe8 :	-----	AAGGTTTCGTCTTGGTCGCGGTGGAGCAGAAGAGATATACCAACTTGGTCCCCTTAATGAG	-----		-----		448
TrMDHe9 :	-----	AAGGTTTCGTCTTGGTCGCGGTGGAGCAGAAGAGATATATCAACTTGGTCCCCTTAATGAG	-----		-----		222
TrMDHe10 :	-----	AAGGTTTCGTCTTGGTCGCGGTGGAGCAGAAGAGATATATCAACTTGGTCCCCTTAATGAG	-----		-----		217

	*	1100	*	1120	*	1140	
TrMDHe1 :	-----		-----		-----		-
TrMDHe2 :	-----		-----		-----		-
TrMDHe3 :	-----		-----		-----		-
TrMDHe4 :	-----		-----		-----		-
TrMDHe5 :	-----		-----		-----		-
TrMDHe6 :	-----		-----		-----		-
TrMDHe7 :	-----		-----		-----		-
TrMDHe8 :	-----	TATGAGAGGATTGGGTTGAAAAAGCGAAGAAAGAGTTAGCAGGAAGCATCCAGAAGGGA	-----		-----		508
TrMDHe9 :	-----	TATGAGAGGATTGGATTAGAAAAAGCGAAGAAAGAGTTAGCAGGAAGCATCCAGAAGGGA	-----		-----		282
TrMDHe10 :	-----	TATGAGAGGATTGGATTAGAAAAAGCGAAGAAAGAGTTAGCAGGAAGCATCCAGAAGGGA	-----		-----		277

FIGURE 69 (cont.)

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	*	1160	*	1180	*	1200		
TrMDHe1	:	-----					:	-
TrMDHe2	:	-----					:	-
TrMDHe3	:	-----					:	-
TrMDHe4	:	-----					:	-
TrMDHe5	:	-----					:	-
TrMDHe6	:	-----					:	-
TrMDHe7	:	-----					:	-
TrMDHe8	:	GTAGAATTCATCAGAAAAATTAAGTCTAGATAAGGAAAAATTAGTTTTGTATTGCTCTTTCT					:	568
TrMDHe9	:	GTAGAATTCATCAGAAAAAANAA-----					:	306
TrMDHe10	:	GTAGAATTCATCAAAAAAAAAAN-----					:	299

	*	1220	*	
TrMDHe1	:	-----		:
TrMDHe2	:	-----		:
TrMDHe3	:	-----		:
TrMDHe4	:	-----		:
TrMDHe5	:	-----		:
TrMDHe6	:	-----		:
TrMDHe7	:	-----		:
TrMDHe8	:	ATATCTATAAAGAACTTGTGTAATAATTCC		:
TrMDHe9	:	-----		:
TrMDHe10	:	-----		:

FIGURE 69 (cont.)

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TrMDHf : GNNTACNGCTATCNACCCTTCTTTCTTATACAATAATNATAGATAAAATTCATCTGCTAAA : 60

TrMDHf : TTATGGAGCCAAATTCAGATGCAAATCAACGAATCGCAAGAATCTCCGGCCACCTAAATC : 120

TrMDHf : CTCCCAATTTCAAGATGAATGAACATGGTGATTCTTCTTTGACAAGTTTCCATTGCCGTG : 180

TrMDHf : CAAAAGGTGGAGCACCTGGATTCAAAGTTGCAATTTTAGGTGCTGCTGGTGGCATAGGTC : 240

TrMDHf : AACCTCTTTCAATGTTGATGAAGATGAATCCTTTGGTTTNAAGTTCTTCATCTTTATGATG : 300

TrMDHf : TTGTTAATACTCCTGGTGTTACTTCTGATATTAGTCATATGGATACTGCTGCTGTTGTTC : 360

TrMDHf : GAGGGTTTTTGGGGCAAATCAGCTTGAGGATGCACCTTACAGGTATGGATTTGGTAATCA : 420

TrMDHf : TTCCTGCCGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG : 480

TrMDHf : CCGGGATCGTTAAACACTCTGTGAAGCAATTGCAAAGCGATGTCCTAAGGCGATTGTCA : 540

TrMDHf : ACGTGATTAGTAATCCGGTTAACTCCACTGTCCCCATTGCGGCTGAAGTTTCAAAGAG : 600

TrMDHf : CCGGTACTTATGATCCCAAGAGACTTTTGGGAGTGACAATGCTTGATGTGGTTCGGGCCA : 660

TrMDHf : ATACGTTTGTGGCTGAAGTTCTTGGTCTTGATCCAAGGGATGTGGATGTCCAGTTGTCTG : 720

TrMDHf : GAGGACATGCCGAATCACCATTTTACCTCTGCTTTCTCAGGTAAACCACATTCCTCTT : 780

TrMDHf : TCACGACAAAGGAAATTGAGTACTTGACAGATCGCATACAAAACGGTGGAAGTGAAGTTG : 840

TrMDHf : TTGAGGCCAAAGCTGGAGCTGGCTCT : 866

FIGURE 70

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TrMDHf : MEPNSDANQRIARISGHLNPPNFKMNEHGDSSLTSFHCRAKGGAPGFKVAILGAAGGIGQ : 60

TrMDHf : PLSMLMKMNPLVXVLHLYDVVNTPGVTSDISHMDTAAVVRGFLGQNQLEDALTGMDLVII : 120

TrMDHf : PAGVPRKPGMTRDDLFNINAGIVKTLCEAIAKRCPKAIVNVISNPVNSTVPAAEVFKRA : 180

TrMDHf : GTYDPKRLLGVTMLDVVRANTFVAEVLGLDPRDVPVVGGHAGITILPLLSQVKPHSSF : 240

TrMDHf : TTKEIEYLTDRIQNGGTEVVEAKAGAGS : 268

FIGURE 71

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		*	20	*	40	*	60		
TrMDHf1 :	GNNTACNGCTATCNACCCTTCTTCTTATACAATAATNATAGATAAAATTCATCTGCTAAA	:	60						
TrMDHf2 :	-----	:	-						
TrMDHf3 :	-----	:	-						
		*	80	*	100	*	120		
TrMDHf1 :	TTATGGAGCCAAATTCAGATGCAAATCAACGAATCGCAAGAATCTCCGGCCACCTAAATC	:	120						
TrMDHf2 :	-----	:	-						
TrMDHf3 :	-----	:	-						
		*	140	*	160	*	180		
TrMDHf1 :	CTCCCAATTTCAAGATGAATGAACATGGTGAATCTTCTTTGACAAGTTTCCATTGCCGTG	:	180						
TrMDHf2 :	-----	:	-						
TrMDHf3 :	-----	:	-						
		*	200	*	220	*	240		
TrMDHf1 :	CAAAAGGTGGAGCACCTGGATTCAAAGTTGCAATTTTAGGTGCTGCTGGTGGCATAGGTC	:	240						
TrMDHf2 :	-----GTGNCATAGGTC	:	12						
TrMDHf3 :	-----	:	-						
		*	260	*	280	*	300		
TrMDHf1 :	AACCTCTTCAATGTTGATGAAGATGAATCCGTTGGTTT-AGTTCCTTCATCTTTATGATG	:	299						
TrMDHf2 :	AACCTCTT-NATGTTGATGAAGATGAATCCATGGTTT-AGTTCCTTCATCTTTATGATG	:	70						
TrMDHf3 :	-----TTTGGTTTNNGTTCCTTATTCTTTATGATG	:	29						
		*	320	*	340	*	360		
TrMDHf1 :	TTGTTAATACTCCTGGTGTTACTTCTGATATTAGTCAGATGGATACTGGTGTCTGTTGTTTC	:	359						
TrMDHf2 :	TTGTTAATACTCCTGGTGTTACTTCTGATATTAGTCATATGGATACTGCTGCTGTTGTTTC	:	130						
TrMDHf3 :	TTG-TAATACTCCTGGTG-TACTTCTGATATTAGT-ATATGGATACTGCTGCTGTTGTTTC	:	86						
		*	380	*	400	*	420		
TrMDHf1 :	GAGGATTTTTTGGGGCAAATCAGCTTGAGGATGCACTTACAGGTATGGATTTGGTAATCA	:	419						
TrMDHf2 :	GAGGGTTTTTGGGGCAAATCAGCTTGAGGATGCACTTACAGGTATGGATTTGGTAATCA	:	190						
TrMDHf3 :	GAGGGTTTTTGGGGCAAATCAGCTTGAGGATGCACTTACAGGTATGGATTTGGTAATCA	:	146						
		*	440	*	460	*	480		
TrMDHf1 :	TTCTGCTGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG	:	479						
TrMDHf2 :	TTCTGCTGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG	:	250						
TrMDHf3 :	TTCTGCTGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG	:	206						
		*	500	*	520	*	540		
TrMDHf1 :	CCGGGATCGTTAAACACTCTGTGAAGCAATTGCGAAGCGATGTCCTAAGGCGATTGTCA	:	539						
TrMDHf2 :	CCGGGATCGTTAAACACTCTGTGAAGCAATTGCAAAGCGATGTCCTAAGGCGATTGTCA	:	310						
TrMDHf3 :	CCGGGATCGTTAAACACTCTGTGAAGCAATTGCAAAGCGATGTCCTAAGGCGGTTGTCA	:	266						
		*	560	*	580	*	600		
TrMDHf1 :	ACGTGATTAGTAATCCGGTTAACTCCACTGTCC-----	:	572						
TrMDHf2 :	ACGTGATTAGTAATCCGGTTAACTCCACTGTCCCCATTGCGGCTGAAGTTTTCAAAGAG	:	370						
TrMDHf3 :	ACGTGATTAGTAATCCGGTTAACTCCACTGTCCCCATTGCGGCTGAAGTTTTCAAAGAG	:	326						

FIGURE 72

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	*	620	*	640	*	660	
TrMDHf1 :	-----						-
TrMDHf2 :	CCGGTACTTATGATCCCAAGAGACTTTTGGGAGTGACAATGCTTGATGTGGTTCGGGGCCA						: 430
TrMDHf3 :	CCGGTACTTATGATCCCAAGAGACTTTTGGGAGTGACAATGCTTGATGTGGTTCGGGGCCA						: 386
	*	680	*	700	*	720	
TrMDHf1 :	-----						-
TrMDHf2 :	ATACGTTTGTGGCTGAAGTTCTTGGTCTTGATCCAAGGGATGTGGATGTCCCAGTTGTCTG						: 490
TrMDHf3 :	ATACGTTTGTGGCTGAAGTTCTTGGTCTTGATCCAAGGGATGTGGATGTCCCAGTTGTCTG						: 446
	*	740	*	760	*	780	
TrMDHf1 :	-----						-
TrMDHf2 :	GAGGACATGCCGGAATCACCATTTTACCTCTGCTTTCTCAGGTTAAACCACATTCCTCTT						: 550
TrMDHf3 :	GAGGACATGCCGGAATCACCATTTTACCTCTGCTTTCTCAGGTTAAACCACATTCCTCTT						: 506
	*	800	*	820	*	840	
TrMDHf1 :	-----						-
TrMDHf2 :	TCACGACAAAGGAAATTGAGTACTTG-----						: 576
TrMDHf3 :	TCACGACAAAGGAAATTGAGTACTTGACAGATCGCATACAAAACGCTGGAAGTGAAGTTG						: 566
	*	860					
TrMDHf1 :	-----						-
TrMDHf2 :	-----						-
TrMDHf3 :	TTGAGGCCAAAGCTGGAGCTGGCTCT						: 592

FIGURE 72 (cont.)

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TrMDhg : * 20 * 40 * 60
MCGLLKVDKEPVTVLVTGAAGQIXYALXPMIARGMMLGPNQPGILHMXDIEPGLEALKGV : 60

TrMDhg : * 80 * 100 * 120
KMELIDGAFPLLRGVVATTDVVEACKDVNIAVMLGGSPRKEGMERKDVMSKNVSIYKAQA : 120

TrMDhg : * 140 *
SALEEHAADCKVLVVANPANTNALILKEFAPSIPEK : 157

FIGURE 74

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      *           20           *           40           *           60
TrMDHg1 : GTAGGCATCA--TAACAGCACAATGAACATGGAAATGTTTGCTTTGGAAATTATGGACAATA : 60
TrMDHg2 : ----GNNGGATCTAACAG-ACAATGAACATGGAAATGTTTGCTTTGGAAATTATGGACAATA : 57

      *           80           *           100          *           120
TrMDHg1 : CGGTCCTTAAAAAATCTGTTCTTGTCTTTATTTTGTACTTTTTTGTGTTTGGGAAGATCGTTAGA : 122
TrMDHg2 : CGGTCCTTAAAAAATCTGTTCTTGTCTTTATTTTGTACTTTTTTGTGTTTGGGAAGATCGTTAGA : 119

      *           140          *           160          *           180
TrMDHg1 : TACATGTGTGGTCTTCTCAAAGTTGATAAGGAACCAGTCACTGTATTGGTCACTGGTGCTGC : 184
TrMDHg2 : TACATGTGTGGTCTTCTCAAAGTTGATAAGGAACCAGTCACTGTATTGGTCACTGGTGCTGC : 181

      *           200          *           220          *           240
TrMDHg1 : AGGACAAATTGGNTATGCTCTTGNTNCAATGATTGCNANAGGGATGATGCTANGNCCAAATC : 246
TrMDHg2 : AGGACAAATTGGTATGCTCTTGTTCCAATGATTGCAAGAGGGATGATGCTAGGCCCAAATC : 243

      *           260          *           280          *           300          *
TrMDHg1 : NACCTGCNATTGTTGATATGCTNGNTTTG----- : 276
TrMDHg2 : AACCTGTAATTCTTCATATGCTTGATATTGAACCAGGATTAGAGGCCCTTAAAGGGGTGAAG : 305

      320           *           340           *           360           *
TrMDHg1 : ----- : -
TrMDHg2 : ATGGAAC TGATGATGGTGCTTTCCCACTTCTTAGAGGTGTTGTTGCTACTACGGATGTTGT : 367

      380           *           400           *           420           *
TrMDHg1 : ----- : -
TrMDHg2 : TGAAGCATGCAAGGATGTTAACATTGCTGTTATGCTTGGTGGATCCCCAAGGAAGGAAGGAA : 429

      440           *           460           *           480           *
TrMDHg1 : ----- : -
TrMDHg2 : TGGAAAGAAAAGATGTAATGTCTAAGAATGTTTCAATTTACAAGGCTCAAGCTTCAGCTTTG : 491

      500           *           520           *           540           *           5
TrMDHg1 : ----- : -
TrMDHg2 : GAGGAGCATGCTGCTGCAGATTGTAAAGTGCTAGTGGTAGCCAATCCAGCAAAACACAAATGC : 553

      60           *           580           *
TrMDHg1 : ----- : -
TrMDHg2 : TCTAATATTGAAAGAATTGCTCCATCAATCCCTGAGAAAA : 594

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FIGURE 75

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TrMDHh : GNNTACNGCTATCNACCCTTCTTTCTTATACAATAATNATAGATAAAATTCATCTGCTAAA : 60

TrMDHh : TTATGGAGCCAAATTCAGATGCAAATCAACGAATCGCAAGAATCTCCGGCCACCTAAATC : 120

TrMDHh : CTCCCAATTTCAAGATGAATGAACATGGTGATTCTTCTTTGACAAGTTTCCATTGCCGTG : 180

TrMDHh : CAAAAGGTGGAGCACCTGGATTCAAAGTTGCAATTTTAGGTGCTGCTGGTGGCATAGGTC : 240

TrMDHh : AACCTCTTTCAATGTTGATGAAGATGAATCCTTTGGTTTNAGTTCTTCATCTTTATGATG : 300

TrMDHh : TTGTTAATACTCCTGGTGTTACTTCTGATATTAGTCATATGGATACTGCTGCTGTTGTTTC : 360

TrMDHh : GAGGGTTTTTGGGGCAAATCAGCTTGAGGATGCACCTTACAGGTATGGATTTGGTAATCA : 420

TrMDHh : TTCCTGCCGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG : 480

TrMDHh : CCGGGATCGTTAAACACTCTGTGAAGCAATTGCAAAGCGATGTCCTAAGGCGATTGTCA : 540

TrMDHh : ACGTGATTAGTAATCCGGTTAACTCCACTGTCCCCATTGCGGCTGAAGTTTCAAAGAG : 600

TrMDHh : CCGGTACTTATGATCCCAAGAGACTTTTGGGAGTGACAATGCTTGATGTGGTTCGGGCCA : 660

TrMDHh : ATACGTTTGTGGCTGAAGTTCTTGGTCTTGATCCAAGGGATGTGGATGTCCAGTTGTCTG : 720

TrMDHh : GAGGACATGCCGGAATCACCATTTTACCTCTGCTTTCTCAGGTAAACCACATTCTCTT : 780

TrMDHh : TCACGACAAAGGAAATTGAGTACTTGACAGATCGCATACAAAACGGTGGAAGTGAAGTTG : 840

TrMDHh : TTGAGGCCAAAGCTGGAGCTGGCTCT : 866

FIGURE 76

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TrMDHh : MEPNSDANQRIARISGHLNPPNFKMNEHGDSSLTSFHCRAKGGAPGFKVAILGAAGGIGQ : 60

TrMDHh : PLSMLMKMNPLVXVLHLYDVVNTPGVTSDISHMDTAAVVRGFLGQNQLEDALTGMDLVII : 120

TrMDHh : PAGVPRKPGMTRDDLFNINAGIVKTLCEAIAKRCPKAIVNVISNPVNSTVPIAAEVFKRA : 180

TrMDHh : GTYDPKRLLGVTMLDVVRANTFVAEVLGLDPRDVPVVGGHAGITILPLLSQVKPHSSF : 240

TrMDHh : TTKEIEYLTDRIQNGGTEVVEAKAGAGS : 268

FIGURE 77

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	* 20 * 40 * 60	
TrMDHh1 :	GNNTACNGCTATCNACCCTTCTTTCTTATACAATAATNATAGATAAAATTCATCTGCTAAA	: 60
TrMDHh2 :	-----	: -
TrMDHh3 :	-----	: -
	* 80 * 100 * 120	
TrMDHh1 :	TTATGGAGCCAAATTCAGATGCAAATCAACGAATCGCAAGAATCTCCGGCCACCTAAATC	: 120
TrMDHh2 :	-----	: -
TrMDHh3 :	-----	: -
	* 140 * 160 * 180	
TrMDHh1 :	CTCCCAATTTCAAGATGAATGAACATGGTGATTCTTCTTTGACAAGTTTCCATTGCCGTG	: 180
TrMDHh2 :	-----	: -
TrMDHh3 :	-----	: -
	* 200 * 220 * 240	
TrMDHh1 :	CAAAAGGTGGAGCACCTGGATTCAAAGTTGCAATTTTAGGTGCTGCTGGTGGCATAGGTC	: 240
TrMDHh2 :	-----CTGNCATAGGTTN	: 12
TrMDHh3 :	-----	: -
	* 260 * 280 * 300	
TrMDHh1 :	AACCTCTTTCAATGTTGATGAAGATGAATCCGTTGGTTT-AGTTCCTTCATCTTTATGATG	: 299
TrMDHh2 :	AACCTCTTT-NATGTTGATGAAGATGAATCCTATGGTTT-AGTTCCTTCATCTTTATGATG	: 70
TrMDHh3 :	-----TTTGGTTTNNGTTCCTTATTCCTTTATGATG	: 29
	* 320 * 340 * 360	
TrMDHh1 :	TTGTTAATACTCCTGGTGTTACTTCTGATATTAGTCAGATGGATACTGGTGTGTTGTTTC	: 359
TrMDHh2 :	TTGTTAATACTCCTGGTGTTACTTCTGATATTAGTCATATGGATACTGCTGTGTTGTTTC	: 130
TrMDHh3 :	TTG-TAATACTCCTGGTG-TACTTCTGATATTAGT-ATATGGATACTGCTGTGTTGTTTC	: 86
	* 380 * 400 * 420	
TrMDHh1 :	GAGGATTTTGGGGCAAATCAGCTTGAGGATGCACTTACAGGTATGGATTGGTAATCA	: 419
TrMDHh2 :	GAGGATTTTGGGGCAAATCAGCTTGAGGATGCACTTACAGGTATGGATTGGTAATCA	: 190
TrMDHh3 :	GAGGATTTTGGGGCAAATCAGCTTGAGGATGCACTTACAGGTATGGATTGGTAATCA	: 146
	* 440 * 460 * 480	
TrMDHh1 :	TTCTTGCGTGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG	: 479
TrMDHh2 :	TTCTTGCGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG	: 250
TrMDHh3 :	TTCTTGCGGTGTTCCCCGTAAACCTGGAATGACAAGAGATGATCTCTTCAATATAAATG	: 206
	* 500 * 520 * 540	
TrMDHh1 :	CCGGGATCGTTAAACACTCTGTGAAGCAATTGCGAAGCGATGTCCTAAGGCGATTGTCA	: 539
TrMDHh2 :	CCGGGATCGTTAAACACTCTGTGAAGCAATTGCAAAGCGATGTCCTAAGGCGATTGTCA	: 310
TrMDHh3 :	CCGGGATCGTTAAACACTCTGTGAAGCAATTGCAAAGCGATGTCCTAAGGCGATTGTCA	: 266
	* 560 * 580 * 600	
TrMDHh1 :	ACGTGATTAGTAATCCGGTTAACTCCACTGTCC-----	: 572
TrMDHh2 :	ACGTGATTAGTAATCCGGTTAACTCCACTGTCCCCATTGCGGCTGAAGTTTCAAAGAG	: 370
TrMDHh3 :	ACGTGATTAGTAATCCGGTTAACTCCACTGTCCCCATTGCGGCTGAAGTTTCAAAGAG	: 326

FIGURE 78

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		*	620	*	640	*	660	
TrMDHh1 :	-----							:-
TrMDHh2 :	CCGGTACTTATGATCCCAAGAGACTTTTGGGAGTGACAATGCTTGATGTGGTTCCGGGCCA							: 430
TrMDHh3 :	CCGGTACTTATGATCCCAAGAGACTTTTGGGAGTGACAATGCTTGATGTGGTTCCGGGCCA							: 386
		*	680	*	700	*	720	
TrMDHh1 :	-----							:-
TrMDHh2 :	ATACGTTTGTGGCTGAAGTTCTTGGTCTTGATCCAAGGGATGTGGATGTCCCAGTTGTCTG							: 490
TrMDHh3 :	ATACGTTTGTGGCTGAAGTTCTTGGTCTTGATCCAAGGGATGTGGATGTCCCAGTTGTCTG							: 446
		*	740	*	760	*	780	
TrMDHh1 :	-----							:-
TrMDHh2 :	GAGGACATGCCGGAATCACCATTTTACCTCTGCTTTCTCAGGTTAAACCACATTCCTCTT							: 550
TrMDHh3 :	GAGGACATGCCGGAATCACCATTTTACCTCTGCTTTCTCAGGTTAAACCACATTCCTCTT							: 506
		*	800	*	820	*	840	
TrMDHh1 :	-----							:-
TrMDHh2 :	TCACGACAAAGGAAATTGAGTACTTG-----							: 576
TrMDHh3 :	TCACGACAAAGGAAATTGAGTACTTGACAGATCGCATACAAAACGGTGGAAGTGAAGTTG							: 566
		*	860					
TrMDHh1 :	-----							:-
TrMDHh2 :	-----							:-
TrMDHh3 :	TTGAGGCCAAAGCTGGAGCTGGCTCT							: 592

FIGURE 78 (cont.)

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      *      20      *      40      *      60
TrMDHi : GNAATCCTCTTTGNCTCCCCTACCCTCCTTTTTTTTCCTTCCTTACACCTTCTCTTA : 60

      *      80      *      100     *      120
TrMDHi : TCAACTTTCCACCTCTGAACAAAACCTCAATCTTTTCTCATTTTCTTATACCCTTTTACA : 120

      *      140     *      160     *      180
TrMDHi : AACTTCTTCATAAAGTGTTAGGTTTTTTTTTATTACTCTTTTCAAGAACCACAAAAACAG : 180

      *      200     *      220     *      240
TrMDHi : TGTTTCTTGAATTCTTTGGAATTTTTTTTTTCTGCAACCATGGCCTTGGCACACTTAAA : 240

      *      260     *      280     *      300
TrMDHi : CAACCCCACTTGCTCAAAAACCTCAACTCACTCATCAACTCTCATTTCTCTCTAGGAC : 300

      *      320     *      340     *      360
TrMDHi : TCTCCCTAGGCAATATCACTGTACTTTTGCACCACTTCACAGAACTCAACATGGCAGAAT : 360

      *      380     *      400     *      420
TrMDHi : TACTTGTTCTGTTGCACCAAATCAAGTGCAGGCTCCAGCTGTACAATCACAGGATCCCAA : 420

      *      440     *      460     *      480
TrMDHi : GAATAAGCCTGATTGCTATGGTGTCTTCTGCCTTACCTATGATTTGAAGGCTGAAGAGGA : 480

      *      500     *      520     *      540
TrMDHi : GACAAAATCCTGGAAGAAATTAATCAACATTGCAGTCTCAGGTGCTGCTGGAATGATTC : 540

      *      560     *      580     *      600
TrMDHi : CAATCATCTACTTTTCAAGCTTGCATCTGGTGAAGTTTTTGGCCCAAATCAACCTATTGC : 600

      *      620     *      640
TrMDHi : GCTGAAATTATTAGGATCAGAAAGGTCCTTCCAAGCTCTTGAAGGTG : 647

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FIGURE 79

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TrMDHi : * 20 * 40 * 60
MALAHLNNPTCSKTQLHSSQLSFLSRTLPRQYHCTFAPLHRTQHGRITCSVAPNQVQAPA : 60

TrMDHi : * 80 * 100 * 120
VQSQDPKNKPDICYGVFCLTYDLKAEETKSWKKLINIAVSGAAGMISNHL LFKLASGEVF : 120

TrMDHi : * 140
GPNQPIALKLLGSERSFQALEG : 142

FIGURE 80

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      *           20           *           40           *           60
TrMDHi1 : GNAATCCTCTTTGNCCTCCCTACCTCCTTTTTTTTCCTTCCTTCTTACA-CTTCTCTTCT : 60
TrMDHi2 : -----TTCTTAGACCTTCTCTTAT : 19

      *           80           *           100          *           120
TrMDHi1 : CAACTTTCCACCTCTGAACAAAACCTTCATCTTTTCTCATTTCCTTATACCCTTTTACAAA : 121
TrMDHi2 : -AACTTTCCACCTCTGAACAAA-TT-AATCTTTTCT-ATTTTCTTATACCCTTTTACAAA : 76

      *           140          *           160          *           180
TrMDHi1 : CTTCTTCATAAAGTGTTAATTT--TTTTTATTACTCTTTTCAAGAAACACAAAAACAGTGT : 180
TrMDHi2 : CTTCTTCATAAAGTGTTGGTTTTTTTTTATTACTCTTTTCAAGAACCACAAAAACAGTGT : 137

      *           200          *           220          *           240
TrMDHi1 : TTCTTGAATTCTTTGAATTTTTTTTTTTCCTGCAACCATGGCCTTGGCACAGTTAAACAAT : 241
TrMDHi2 : TTCTTGAATTC-TTGGAA-TTTTTTTTTTTCCTGCAACCATGGCCTTGGCACAGTTAAACAAC : 196

      *           260          *           280          *           300
TrMDHi1 : CCCACTTGCTCAAAAACCTCAACTTCATCATCAAACTCTCATTTTTGTCTAGGACTCTCC : 302
TrMDHi2 : CCCACTTGCTCAAAAACCTCAACTTCATCATCAAACTCTCATTTCCTCTAGGACTCTCC : 257

      *           320          *           340          *           360
TrMDHi1 : CTAGGCAATATCACTGTACTTTTGCACTTCACAGAACTCAACATGGCAGAATTACTTG : 363
TrMDHi2 : CTAGGCAATATCACTGTACTTTTGCACTTCACAGAACTCAACATGGCAGAATTACTTG : 318

      *           380          *           400          *           420
TrMDHi1 : TTCTGTTGCACCAAATCAAGTGCAGGCTCCAGCTGTACAATCACAGGATCCCAAGAATAAG : 424
TrMDHi2 : TTCTGTTGCACCAAATCAAGTGCAGGCTCCAGCTGTACAATCACAGGATCCCAAGAATAAG : 379

      *           440          *           460          *           480
TrMDHi1 : CCTGATTGCTATGGTGCTTCTGCCTTACCTATGATTTGAAGGCTGAAGAGGAGACAAAAT : 485
TrMDHi2 : CCTGATTGCTATGGTGCTTCTGCCTTACCTATGATTTGAAGGCTGAAGAGGAGACAAAAT : 440

      *           500          *           520          *           540
TrMDHi1 : CCTGGAAGAAATTAATCAACATTCAGTCTCAGGTGCTGCTGGAATGATTTCCAATCATCT : 546
TrMDHi2 : CCTGGAAGAAATTAATCAACATTCAGTCTCAGGTGCTGCTGGAATGATTTCCAATCATCT : 501

      *           560          *           580          *           600          *
TrMDHi1 : ACTTTTCAAGCTTGCATCTGGTGAAGTTTTTGGTCCAAATCAACCTATTGCGCTGA----- : 602
TrMDHi2 : ACTTTTCAAGCTTGCATCTGGTGAAGTTTTTGGCCCCAAATCAACCTATTGCGCTGAAATTA : 562

      620           *           640
TrMDHi1 : ----- : -
TrMDHi2 : TTAGGATCAGAAAGGTCCTTCCAAGCTCTTGAAGGTG : 599

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FIGURE 81

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TrMDHj : GCAAAGCNCCTCNCNGACCTGGTGTGGAGCGAGCAGCTTTGCTAGACATAAAATGGGCAGAT : 60

TrMDHj : TTTTGCGGAGCAGGGAAAAGCTCTAAATGCAGTCGCATCTCGCAATGTCAAAGTTATAGT : 120

TrMDHj : TGTGGGAAACCCCTTGCAATACAAATGCATTAATATGCTTGAAGAATGCTCCAAATATTCC : 180

TrMDHj : TGCAAAAATTTTCATGCTTTTAACCCGTTTAGATGAGAACAGAGCAAAATGTCAGCTAGC : 240

TrMDHj : CCTCAAGGCAGGTGTCTTCTACGATAAAGTGTGCAATATGACGATATGGGGAAACCACTC : 300

TrMDHj : AACTACTCAGGTCCCCGATTTCTTAAATGCCAGAATCGATGGTTTGCCTGTCAAAGAAGT : 360

TrMDHj : GATTAAGGATCAAAAGTGGTTAGAGGAAGAGTTCACCGAAAAAGTTCAAAAGAGAGGTGG : 420

TrMDHj : CGTGCTTATTCAAAGTGGGGAAGATCGTCTGCTGCATCAACTTCTGTGTCGATAGTTGA : 480

TrMDHj : TGCCATACGATCTTTGATCACTCCTACTCCGGAGGGTGATTGGTTTTCTACTGGTGTGTA : 540

TrMDHj : TACAGCTGGAAATCCTTATGGAATAGCTG : 569

FIGURE 82

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TrMDHj : * 20 * 40 * 60
 : QSXXXPGVERAALLDINGQIFAEQGKALNAVASRNVKVIVVGNPCNTNALICLKNAPNIP : 60

 * 80 * 100 * 120
TrMDHj : AKNFHALTRLDENRAKCQLALKAGVFYDKVSNMTIWGNHSTTQVPDFLNARIDGLPVKEV : 120

 * 140 * 160 * 180
TrMDHj : IKDQKWLEEEFTEKVQKRGGVLIQKWGRSSAASTSVSIVDAIRSLITPTPEGDWFFSTGVY : 180

TrMDHj : TAGNPYGIA : 189

FIGURE 83

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TrMDHk : GNGTAGAACCCGTGAAGCCTTTTCCCTCCGGTCTCCCCGCTTGCGCCGTCGCCGTCAATT : 60
 * 20 * 40 * 60

TrMDHk : GCTGCTTGTGTGTCGTCGCCTCCAGCTCCTCCTCCTCCACTGTGCCAACCGAATTACAAACC : 120
 * 80 * 100 * 120

TrMDHk : AAAAAAATGGCGACTTGTTTGCAAACACAACCTCCTCCACACAAGACCTTTTCAGTTTCGG : 180
 * 140 * 160 * 180

TrMDHk : TCTTCCTCGTCGACAAGACCAACTTCCCTAAGATGTTCCGCGCCACCCCATCCACCAA : 240
 * 200 * 220 * 240

TrMDHk : AAATCCTACAAAATCACTCTTCTCCGGGTGATGGCATAGGTCCTGAAGTCGTTTCCGTC : 300
 * 260 * 280 * 300

TrMDHk : GCTAAAGACGTTCTTCTCCTCACTGGATCCATCCATGGGATTAACTTGAGTTTCAAGAG : 360
 * 320 * 340 * 360

TrMDHk : AAGCTTTTGGGTGGTGCTGCTCTTGATGCTACTGGAGTTCCTTTACCTGATGATACTCTT : 420
 * 380 * 400 * 420

TrMDHk : TCTGTTGCTAAGCAATCTGATGCTGTTCTTCTTGGTGCTATTGGAGGGTATAAATGGGAT : 480
 * 440 * 460 * 480

TrMDHk : AAAAATGAGAAACAGCTGAAGCCAGAACTGGATTGCTTCAGCTACGAGAAGGGCTTCAA : 540
 * 500 * 520 * 540

TrMDHk : GTTTTGTGCTAATCTCAGA : 558
 *

FIGURE 84

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TrMDHk : * 20 * 40 * 60
MATCLQTQLLHTRPFQFRSSSTRPTSLRCSAATPSTKKS YKITLLPGDGIGPEVVS VAK : 60

 * 80 * 100 * 120
TrMDHk : DVLLLTGSIHG I KLEFQEKLLGGAALDATGVPLPDDT LSVAKQSDAVLLGAIGGYKWDKN : 120

 * 140
TrMDHk : EKQLKPETG LLQLREGLQVFANLR : 144

FIGURE 85

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TrPEPCa : GNNACATTNCCGAATGCTGCTGAACTAGGGAGTGATTCCCTTGGAGCCTATGTCATCTCT : 60
 * 20 * 40 * 60

TrPEPCa : ATGGCCTCAAGTGCAAGCGATGTCCTTGCAAGTAGAGCTTTTACAGAAGGATGCACGTCCT : 120
 * 80 * 100 * 120

TrPEPCa : ACAGTTTGTGGAGAATTAGGAAGAGCATGTCCGGGTGGAACGCTTCGGGTGGTTCCTCTA : 180
 * 140 * 160 * 180

TrPEPCa : TTTGAAACTGTGCAAGACCTGAGAGGAGCTGGTGCAGTTATCAGAAAACCTTTTATCAATC : 240
 * 200 * 220 * 240

TrPEPCa : GATTGGTACCGCCAACACATCATTAAAGAACCATACCGACACCAAGAGGTTATGGTCGGT : 300
 * 260 * 280 * 300

TrPEPCa : TATTCTGATTCTGGTAAAGATGCCGGGCGCTTTACTGCTGCTTGGGAACTTTACAAAGCT : 360
 * 320 * 340 * 360

TrPEPCa : CAAGAGGATGTAGTGGCTGCTTGCAATAAGTACGATACTAAGGTTACTTTGTTCCACGGC : 420
 * 380 * 400 * 420

TrPEPCa : CGCGGAGGGAGTATTGGACGTGGCGGAGGCCAACATATCTGGCTATTCAGTCCCAGCCA : 480
 * 440 * 460 * 480

TrPEPCa : CCTGGCTCTGTGATGGGAACCCCTTCGGTCAACTGAGCAGGGAGAGATGGTGCAGGCCGAG : 540
 * 500 * 520 * 540

TrPEPCa : TTTGGGTTGCCACAGACAGCAGTTAGACAACCTTGAAATATACACAACAGCTGTGCTACTT : 600
 * 560 * 580 * 600

TrPEPCa : GCTACACGTCGTCCACCACTCCACCTCGAGAAGAAAAATGGCGTAATCTAATGGAAGAC : 660
 * 620 * 640 * 660

TrPEPCa : ATNTCAAAAATCAGTTGTCTAGTCCTACCGCAGTGTAGTCTATGAAAATCCAGN : 713
 * 680 * 700 *

FIGURE 86

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TrPEPCa : XTXPNAAELGSDSLGAYVISMASASDVLAVELLQKDARLTVCGELGRACPGGTLRVVPL : 60

TrPEPCa : FETVQDLRGAGAVIRKLLSIDWYRQHIIKNHNGHQEVMVGYSDSGKDAGRFTA AWELYKA : 120

TrPEPCa : QEDVVAACNKYDTKVTLFHGRGGSIGRGGGPTYLAIQSQPPGSVMGTLRSTEQGEMVQAE : 180

TrPEPCa : FGLPQTAVRQLEIYTTAVLLATRRPPLPPREEKWRNLMEDXSKISCQSYRSVVYENP : 237

FIGURE 87

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	* 20 * 40 * 60	
TrPEPCa1 :	GNNACATTNCCGAATGCTGCTGAACTAGGGAGTGATTCCCTTGGAGCCTATGTCATCTCT	: 60
TrPEPCa2 :	-----	: -
TrPEPCa3 :	-----	: -
	* 80 * 100 * 120	
TrPEPCa1 :	ATGGCCTCAAGTGCAAGCGATGTCCTTGCACTAGAGCTTTT-CAGAAGGATGCACCACTT	: 119
TrPEPCa2 :	-----GNACTTTTACAGAAGGATGCACGTCTT	: 27
TrPEPCa3 :	-----AGCTTTTACAGAGGATGCACGTCTT	: 26
	* 140 * 160 * 180	
TrPEPCa1 :	GCCTTATTGGAGAGTTTGGGAAGAGCATGTCCGGTGGAACTTCGGGTGTCCTCTA	: 179
TrPEPCa2 :	ACAGTTTGTGGAGAATTAGGAAGAGCATGTCCGGTGGAACTTCGGGTGTCCTCTA	: 87
TrPEPCa3 :	ACAGTTTGTGGAGAATTAGGAAGAGCATGTCCGGTGGAACTTCGGGTGTCCTCTA	: 86
	* 200 * 220 * 240	
TrPEPCa1 :	TTTGAAACTGTGCAAGACCTGAGAGGAGCTGGTGCAGTTATCAGAACTTTTATCGATA	: 239
TrPEPCa2 :	TTTGAAACTGTGCAAGACCTGAGAGGAGCTGGTGCAGTTATCAGAACTTTTATCAATC	: 147
TrPEPCa3 :	TTTGAAACTGTGCAAGACCTGAGAGGAGCTGGTGCAGTTATCAGAACTTTTATCAATC	: 146
	* 260 * 280 * 300	
TrPEPCa1 :	GATGGTACCGTGAACACATCATTAAGAACCATAAGGACACCAAGAGGTTATGGTGGG	: 299
TrPEPCa2 :	GATTGGTACCGCCAACACATCATTAAGAACCATAACGGACACCAAGAGGTTATGGTGGG	: 207
TrPEPCa3 :	GATTGGTACCGCCAACACATCATTAAGAACCATAACGGACACCAAGAGGTTATGGTGGG	: 206
	* 320 * 340 * 360	
TrPEPCa1 :	TATTCTGATTCTGGTAAAGATGCGGGCGCTTTACTGCTGCTTGGGAACCTTTACAAAGCT	: 359
TrPEPCa2 :	TATTCTGATTCTGGTAAAGATGCGGGCGCTTTACTGCTGCTTGGGAACCTTTACAAAGCT	: 267
TrPEPCa3 :	TATTCTGATTCTGGTAAAGATGCGGGCGCTTTACTGCTGCTTGGGAACCTTTACAAAGCT	: 266
	* 380 * 400 * 420	
TrPEPCa1 :	CAGGAGGATGTAGTGGCTGCTTGCATTAAGTATGGTATTAAGGTACAGTGTTCATGGC	: 419
TrPEPCa2 :	CAAGAGGATGTAGTGGCTGCTTGCATTAAGTACGATACTAAGGTACTTTGTTCCACGGC	: 327
TrPEPCa3 :	CAAGAGGATGTAGTGGCTGCTTGCATTAAGTACGATACTAAGGTACTTTGTTCCACGGC	: 326
	* 440 * 460 * 480	
TrPEPCa1 :	CGTGGAGGGAGTATTGGTGGGCGGTGGCCCTACATATCTGGCTATTCAGTCCCAGCCA	: 479
TrPEPCa2 :	CGCGGAGGGAGTATTGGACGTGGCGGAGGCCCAACATATCTGGCTATTCAGTCCCAGCCA	: 387
TrPEPCa3 :	CGCGGAGGGAGTATTGGACGTGGCGGAGGCCCAACATATCTGGCTATTCAGTCCCAGCCA	: 386
	* 500 * 520 * 540	
TrPEPCa1 :	CCTGGGCTCTGTGATGGGAACCTTCGGTCACTGAGCAGGGAGAGATGGTACAGGCCAG	: 539
TrPEPCa2 :	CCTGGCTCTGTGATGGGAACCTTCGGTCACTGAGCAGGGAGAGATGGTGCAGGCCAG	: 447
TrPEPCa3 :	CCTGGCTCTGTGATGGGAACCTTCGGTCACTGAGCAGGGAGAGATGGTGCAGGCCAG	: 446
	* 560 * 580 * 600	
TrPEPCa1 :	TTTGGGTTACACAGATTAGCTGTAGACAACCTTGANN-----	: 576
TrPEPCa2 :	TTTGGGTTGCCACAGACAGCAGTTAGACAACCTTGAAATATACACAACAGCTGTGCTACTT	: 507
TrPEPCa3 :	TTTGGGTTGCCACAGACAGCAGTTAGACAACCTTGAAATATACACAACAGCTGTGCTACTT	: 506

FIGURE 88

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	*	620	*	640	*	660		
TrPEPCa1 :	-----						:	-
TrPEPCa2 :	GCTACACGTCGTCCACCACTCCCACCTCGAGAAGAAAAATGGCGTAATCTAATGGAAGAC						:	567
TrPEPCa3 :	GCTACACGTCGTCCACCACTCCCACCTCGAGAAGAAAAATGGCGTAATCTAATGGAAGAC						:	566
	*	680	*	700	*			
TrPEPCa1 :	-----						:	-
TrPEPCa2 :	ATN-----						:	570
TrPEPCa3 :	ATGTCAAAAATCAGTTGTCAGTCCTACCGCAGTGTAGTCTATGAAAAATCCAGN						:	619

FIGURE 88 (cont.)

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TrPEPCb : GNAAGGGACAAGCTCTATCGTACTCGTGAGCGGTCTCGCTATCTCTTAGCTCATGGCTAT : 60
 * 20 * 40 * 60

TrPEPCb : TCTGAAATTCCTGAAGAAGCCACATTCACCGATGTTGATGAGTTCTTGGAACCTCTTGAA : 120
 * 80 * 100 * 120

TrPEPCb : CTATGCTACAGATCACTCTGTGCTTGTGGTGATCGTGCGATTGCCGATGGAAGCCTTCTT : 180
 * 140 * 160 * 180

TrPEPCb : GATTTCTTGAGGCAAGTTTCCACTTTTGGACTGTCACTGGTAAGACTTGATATAAGGCAA : 240
 * 200 * 220 * 240

TrPEPCb : GAGTCAGATCGTCACACGGACGTGATGGATGCCATTACCAAACATTTGGAAATTGGATCC : 300
 * 260 * 280 * 300

TrPEPCb : TACCAAGACTGGTCTGAAGAAAAAAGACAGGAATGGCTTTTGTCTGAGTTGGTTGGCAAA : 360
 * 320 * 340 * 360

TrPEPCb : AGGCCGCTTTTGGACCTGACCTACCTCAAACCGATGAAATTAGAGAAGTTTtagagaca : 420
 * 380 * 400 * 420

TrPEPCb : TTTCATGTCATAGCAGAACTTCCATCAGACAACCTTGGAGCCTATATCATTTCGATGGCA : 480
 * 440 * 460 * 480

TrPEPCb : ACTGCCCCGTCTGATGTGCTAGCGTTGAACTTCTTCAACGTGAATGCAAATCAAGAAT : 540
 * 500 * 520 * 540

TrPEPCb : CCGTTAAGAGTTGTTCCGTTGTTTGAGAACTTGCTGATCTCGAGTCTGCTCCTGCTG : 598
 * 560 * 580 *

FIGURE 89

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TrPEPCb : XRDKLYRTREERSRYLLAHGYSEIPEEATFTDVDEFLEPLELCYRSLCACGDRAIADGSLL : 60

TrPEPCb : DFLRQVSTFGLSLVRLDIRQESDRHTDVMDAITKHLEIGSYQDWSEEKQEWLLSELVGK : 120

TrPEPCb : RPLFGPDLPQTDEIREVLETFHVI AELPSDNFGAYIISMATAPSDVLAVELLQRECKIKN : 180

TrPEPCb : PLRVVPLFEKLADLESAPA : 199

FIGURE 90

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      *           20           *           40           *           60
TrPEPCb1 : GNAAGGGACAAGCTCTATCGTACTCGTGAGCGGTCTCGCTATCTCTTAGCTCATGGCTAT : 60
TrPEPCb2 : GNAAGGGACAAGCTCTATCGTACTCGTGAGCGGTCTCGCTATCTCTTAGCTCATGGCTAT : 60

      *           80           *           100          *           120
TrPEPCb1 : TCTGAAATTCTGAAGAAGCCACATTACCCGATGTTGATGAGTTCTTGGAACCTCTTGAA : 120
TrPEPCb2 : TCTGAAATTCTGAAGAAGCCACATTACCCGATGTTGATGAGTTCTTGGAACCTCTTGAA : 120

      *           140          *           160           *           180
TrPEPCb1 : CTATGCTACAGATCACTCTGTGCTTGTGGTGATCGTGCGATTGCCGATGGAAGCCTTCTT : 180
TrPEPCb2 : CTATGCTACAGATCACTCTGTGCTTGTGGTGATCGTGCGATTGCCGATGGAAGCCTTCTT : 180

      *           200          *           220           *           240
TrPEPCb1 : GATTTCTTGAGGCAAGTTTCCACTTTTGGACTGTCACTGGTAAGACTTGATATAAGGCAA : 240
TrPEPCb2 : GATTTCTTGAGGCAAGTTTCCACTTTTGGACTGTCACTGGTAAGACTTGATATAAGGCAA : 240

      *           260          *           280           *           300
TrPEPCb1 : GAGTCAGATCGTCACACGGACGTGATGGATGCCATTACCAAACATTGGAAATTTGGATCC : 300
TrPEPCb2 : GAGTCAGATCGTCACACGGACGTGATGGATGCCATTACCAAACATTGGAAATTTGGATCC : 300

      *           320          *           340           *           360
TrPEPCb1 : TACCAAGACTGGTCTGAAGAAAAAGACAGGAATGGCTTTTGTCTGAGTTGGTTGGCAAA : 360
TrPEPCb2 : TACCAAGACTGGTCTGAAGAAAAAGACAGGAATGGCTTTTGTCTGAGTTGGTTGGCAAA : 360

      *           380          *           400           *           420
TrPEPCb1 : AGGCCGCTTTTGGACCTGACCTACCTCAAACCGATGAAATTAGAGAAGTTTATAGAGACA : 420
TrPEPCb2 : AGGCCGCTTTTGGACCTGACCTACCTCAAACCGATGAAATTAGAGAAGTTTATAGAGACA : 420

      *           440          *           460           *           480
TrPEPCb1 : TTTCATGTCATAGCAGAACTTCCATCAGACAACCTTGGAGCCTATATCATTTTCGATGGCA : 480
TrPEPCb2 : TTTCATGTCATAGCAGAACTTCCATCAGACAACCTTGGAGCCTATATCATTTTCGATGGCA : 480

      *           500          *           520           *           540
TrPEPCb1 : ACTGCCCCGTCTGATGTGCTAGCGGTTGAACTTCTTCAACGTGAATGCAAAATCAAGAAT : 540
TrPEPCb2 : ACTGCCCCGTCTGATGTGCTAGCGGTTGAACTTCTTCAACGTGAATGCAAAATCAAGAAT : 540

      *           560          *           580           *
TrPEPCb1 : CCGTTAAGAGTTGTTCCGTTGTTTGAGAACTTGCTGATCTCGAGTCTGCTCCTGCTG : 598
TrPEPCb2 : CCGTTAAGAGTTGTTCCGTTGTTTGAGAACTTGCTGATCTCGN----- : 584

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FIGURE 91

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      *           20           *           40           *           60
TrPEPCc : GTCACATGACAAACNATATCTCCCTTTCTCTAACTCCGTGATCAAGGCGTTAGTTAGTTA : 60

      *           80           *           100          *           120
TrPEPCc : CACAAATTGCTGTTAGGTTTCGTTGTACTTTCCCGTGCAATCCATAGTATCTTGGAGGAA : 120

      *           140          *           160           *           180
TrPEPCc : CAAACTAGATTTTCCACCTAGGTCGTCACGAGATTTTCTCTTCACTATTTTCTTTTTC : 180

      *           200          *           220           *           240
TrPEPCc : ATATAATAACTCAACACTTTTTCTAGCTACTTACTAGTACTGTGTAACACAAATTTTATT : 240

      *           260          *           280           *           300
TrPEPCc : CATTATGGCTACTCCTCGCAACATTGAAAAAATGGCTTCAATTGATGCTCAATTGAGACT : 300

      *           320          *           340           *           360
TrPEPCc : ACTAGCACCAAGGAAAGTTTCTGATGATGATAAACTTGTCGAGTATGATGCTTTGTTATT : 360

      *           380          *           400           *           420
TrPEPCc : GGATCGATTCTTGACATTCTTCAAGATTTGCATGGAGAAGATATCAGACAAACTGTTCA : 420

      *           440          *           460           *           480
TrPEPCc : AGATTGTTATGAGTTATCGGCAGAGTATGAAGGGGAGCTTAAGCCGAGAAATTGGAGGA : 480

      *           500          *           520           *           540
TrPEPCc : ACTTGGGAATATGCTTACTGGTCTTGATGCTGGAGATTCTATTGTTATAGCAAAATCATT : 540

      *           560           *
TrPEPCc : TTCTCATATGCTTAATTTGGCAAACCTGGCAGAGN : 575

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FIGURE 92

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TrPEPCc : MATPRNIEKMASIDAQLRLLAPRKVSDDDKLVEYDALLLDLDRFLDILQDLHGEDIQTVQD : 60

TrPEPCc : CYELSAEYEGELKPEKLEELGNMLTGLDAGDSIVIAKSFHMLNLNLAE : 110

FIGURE 93

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      *           20           *           40           *           60
TrPEPCc1 : GTCACATGACCTTACCTATATCTCCCTTTCTCTAACTCCGTGATCAAGGCGTTAGTTAGTTA : 60
TrPEPCc2 : -----TGACAAACNATATCTCCCTTTCTCTAACTCCGTGATCAAGGCGTTAGTTAGTTA : 54

      *           80           *           100          *           120
TrPEPCc1 : CACAAATTGCTGTTAGGTTTCGTTGTACTTTCCCGTGCAATCCATAGTATCTTGGAGGAA : 120
TrPEPCc2 : CACAAATTGCTGTTAGGTTTCGTTGTACTTTCCCGTGCAATCCATAGTATCTTGGAGGAA : 114

      *           140          *           160          *           180
TrPEPCc1 : CAAACTAGATTTTCCACCTAGGTCGTCACGAGATTTTCCTCTTCACTATTTTTCTTTTTTC : 180
TrPEPCc2 : CAAACTAGATTTTCCACCTAGGTTGTCACGAGATTTTCCTCTTCACTATTTTTCTTTTTTC : 174

      *           200          *           220          *           240
TrPEPCc1 : ATATAATAACTCAACACTTTTTCTAGCTACTTACTAGTACTGTGTAACACAAATTTTATT : 240
TrPEPCc2 : ATATAATAAATCAACACTTTTTCTAGCTACTTACTAGTACTGTGTAACACAAATTTTATT : 234

      *           260          *           280          *           300
TrPEPCc1 : CATTATGGCTACTCCTCGCAACATTGAAAAAATGGCTTCAATTGATGCTCAATTGAGACT : 300
TrPEPCc2 : CATTATGGCTACTCCTCGCAACATTGAAAAAATGGCTTCAATTGATGCTCAATTGAGACT : 294

      *           320          *           340          *           360
TrPEPCc1 : ACTAGCACCAAGGAAAGTTTCTGATGATGATAAACTTGTTCGAGTATGATGCTTTGTTATT : 360
TrPEPCc2 : ACTAGCACCAAGGAAAGTTTCTGATGATGATAAACTTGTTCGAGTATGATGCTTTGTTATT : 354

      *           380          *           400          *           420
TrPEPCc1 : GGATCGATTTCCTTGACATTCTTCAAGATTTCATGGAGAAGATATCAGACAAACTGTTCA : 420
TrPEPCc2 : GGATCGATTTCCTTGACATTCTTCAAGATTTCATGGAGAAGATATCAGACAAACTGTTCA : 414

      *           440          *           460          *           480
TrPEPCc1 : AGATTGTTATGAGTTATCGGCAGAGTATGAAGGGGAGCTTAAGCCGGAGAAAATTGGAGGA : 480
TrPEPCc2 : AGATTGTTATGAGTTATCGGCAGAGTATGAAGGGGAGCTTAAGCCGGAGAAAATTGGAGGA : 474

      *           500          *           520          *           540
TrPEPCc1 : ACTTGGGAATATGCTTACTGGTCTTGATGCTGGAGATTCTATTGTTATAGCAAAATCATT : 540
TrPEPCc2 : ACTTGGGAATATGCTTACTGGTCTTGATGCTGGAGATTCTATTGTTATAGCAAAATCATT : 534

      *           560          *
TrPEPCc1 : TTCTCATATGCTTAATTTGGCAAACCTGGCAGAGN : 575
TrPEPCc2 : TTN----- : 537

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FIGURE 94

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TrPEPCd : AGAAGATCTCATGTTTGAGTTGTCTATGTGGCGCTGCAACGACGAGCTCCGTGTTAGAGC : 60
 * 20 * 40 * 60

TrPEPCd : TGAAGAGCTTCATAGATCCTCAAAGAAAGATGCAAAACATTATATTGAGTTTTGGAAACA : 120
 * 80 * 100 * 120

TrPEPCd : GATTCTCCAAACGAGCCATATCGTGTATTCTTGAGGTGTGAGGGACAAACTGTATAA : 180
 * 140 * 160 * 180

TrPEPCd : TACACGTGAACGTGCTCGACAGTTATTAGCAAATGGAACCTCTGACATCCTTGAAGAGAC : 240
 * 200 * 220 * 240

TrPEPCd : AACCTTCACGAATGTTGAGCAGTTTCTGGAGCCTCTTGAAGTGTGTTATAGGTCACTTTG : 300
 * 260 * 280 * 300

TrPEPCd : TGCATGTGGTGACCGATCAATAGCAGACGGAAGCCTTCTTGATTCTTGCGACAAGTTTC : 360
 * 320 * 340 * 360

TrPEPCd : TACATTTGGACTTTCACTTGTAAGACTCGACATCCGTCAAGAGTCAGACAGGCACACAGA : 420
 * 380 * 400 * 420

TrPEPCd : CGTTATGGATGCAATTACAAAACACTTGGAGATTGGATCTTACCGAGAATGGTCGGAAGA : 480
 * 440 * 460 * 480

TrPEPCd : ACGCAGGCAGGAATGGCTCTTGTCTGAGCTTAGTGGAAAACGCCCTCTCTTCGCCCATGA : 540
 * 500 * 520 * 540

TrPEPCd : TCTTCCTAAGACAGAAGAAATTGCCGATGTTTTAGATACCTTNCACGTNATTTCANAACT : 600
 * 560 * 580 * 600

TrPEPCd : TNCCTCANATAGCTTTGGTGCCTATATCATCTCAATGGCAACCTCCCCATCTGATGTGCT : 660
 * 620 * 640 * 660

TrPEPCd : AGCTGTCGAGCTTTTACAACGTGAATGTCATGTGAAGCAGCCGTTAANAGTTGTTCCACT : 720
 * 680 * 700 * 720

TrPEPCd : GTTTGAAAAGCTCGCCNGTCTTGAGTCTGCTCCTGCTGCGGNAGCGGTTTTTTNTTAGA : 780
 * 740 * 760 * 780

TrPEPCd : TTGGGNCANAACCGNNNTAATGGAAAGCAGAAGTTNTGATAGGTACTCANACTNNGGAAA : 840
 * 800 * 820 * 840

TrPEPCd : AGATGCTGGCCGNN : 854
 *

FIGURE 95

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TrPEPCd : EDLMFELSMWRCNDELRVRAEELHRSSKKDAKHYIEFWKQIPPNEPYRVILGGVRDKLYN : 60

TrPEPCd : TRERARQLLANGTSDILEETTFTNVEQFLEPLELCYRSLCACGDRSIADGSLLDFLRQVS : 120

TrPEPCd : TFGLSLVRLDIRQESDRHTDVMDAITKHLEIGSYREWSEERRQEWLLSELGKRPLFGHD : 180

TrPEPCd : LPKTEEIADVLDTXHXISXLXSXSFAYIISMATSPSDVLAVELLQRECHVKQPLXVVPL : 240

TrPEPCd : FEKLAXLESAPAAXARFXLDWXXTXXMESRSXDRYSXXGKDAGX : 284

FIGURE 96

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TrPEPCe : GTTCACTGTCTCTCTGNCCAATTTTCCTCCCTTGCTCTTCTTTTCTTCTTCTTCTCCTCGTA : 60
 * 20 * 40 * 60

TrPEPCe : TCTTACTGCCTCATTACACGGGTGAGAAGGAGTGAATTGCTCCAATGGCAACAAACAAAA : 120
 * 80 * 100 * 120

TrPEPCe : TGGAAAAAATGGCATCAATTGATGCACAGCTTAGACAATTAGTACCAGCAAAAGTTAGTG : 180
 * 140 * 160 * 180

TrPEPCe : AAGATGATAAACTTATTGAGTATGATGCTTTGTGTTGGATCGGTTTCTTGATATCCTTC : 240
 * 200 * 220 * 240

TrPEPCe : AGGATTTACATGGAGAGGATCTGAAAGATTCTGTTCAAGAAGTGTATGAACCTTCTGCGG : 300
 * 260 * 280 * 300

TrPEPCe : AGTATGAAAGAAAGCATGATCCTAAGAACTTGAAGAGCTCGGAAATTTGATAACAAGTT : 360
 * 320 * 340 * 360

TrPEPCe : TAGATGCAGGAGATTCAATTGTTGTTGCTAAGTCCTTTTCGCACATGCTTAACTTGGCCA : 420
 * 380 * 400 * 420

TrPEPCe : ACTTAGCTGAAGAGGTTTCAATTGCTCATCGTCGAAGGAACAAGTTGAAGAAAGGAGATT : 480
 * 440 * 460 * 480

TrPEPCe : TTAGGGATGAGAGCAATGCAACTACCGAATCAGACATCGAAGAACTCTTAAGAGACTTG : 540
 * 500 * 520 * 540

TrPEPCe : TGTTTAATATGAAGAAATCTCCTCAGGAAGTTNTTGATGCGTTGAAGAACCNNACCGTTG : 600
 * 560 * 580 * 600

TrPEPCe : ATTTGGTTCTTACTGCTCATCCCACTCAGTCCGTTTCGANGNCCNCTGCTTCCCNMNGCCT : 660
 * 620 * 640 * 660

TrPEPCe : GGNACGGGNACCGCNCTGNCTATCNNACTGNNN : 693
 * 680 *

FIGURE 97

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TrPEPCe : MATNKMEKMASIDAQLRQLVPAKVSEDDKLI EYDALLLD RFLDILQDLHGEDLKDSVQEV : 60

TrPEPCe : YELSAEYERKHDPKKLEELGNLITSLDAGDSIVVAKSF SHMLNLANLAEEVQIAHRRRNK : 120

TrPEPCe : LKKGDFRDESNATTESDIEETLKRLVFNMKKSPQEVXDALKNXTVDLVLTAHPTQSVRXX : 180

TrPEPCe : LLPXAWXGXRXXYXTX : 196

FIGURE 98

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TrCSa : GNNNCNCNACCATTACATTAAATNACACTTTCCNCTTTCGCCTTGTTCTTTCTCTTCTCAA : 60
 * 20 * 40 * 60
 TrCSa : TATAAAGACCAATTCAATTCCCAATTCTTTTGATCCGAAATCATTATTCTACGCGTCT : 120
 * 80 * 100 * 120
 TrCSa : TCTCTCTTCTCTGCGTTTCAAACCCTAGTTGTTTGTGATTGATCTAAATGGCGTTCTT : 180
 * 140 * 160 * 180
 TrCSa : TCGAAGCGTTTCTGCGTTTCAAACCTACGATCTCGTGTGGGTCAACAACCTAGTCTTGC : 240
 * 200 * 220 * 240
 TrCSa : TAATTCAGTTAGATGGCTCCAACTCCAAGCTCCAGTAACACTGATCTTTATTCTGAGAT : 300
 * 260 * 280 * 300
 TrCSa : GAAGGAGCTAGTTCCAGAGTATCAGGAACGTGTTAAGAAGTTGAAGAAAGACCATGGAAG : 360
 * 320 * 340 * 360
 TrCSa : TGTGGAATTGGGAAAAATCACAGCTGATATGGTACTTGGTGGGAATGAGAGGAATGACTGC : 420
 * 380 * 400 * 420
 TrCSa : TTTAGTGTGGCTAGGCTCAGCTGTTGACCCAGATGAGGGAATTCGCTTTAGGGGCATGAC : 480
 * 440 * 460 * 480
 TrCSa : AATTCCTGACTGCCAGAAAACACTTCCAGGTGCTTTTCCTGGTGGGGAGCCTTTGCCCGA : 540
 * 500 * 520 * 540
 TrCSa : GGCTATACTGTGGCTTCTATTGACCGGAAAGGTACCAAGTAAAGAGCAAGTAGATTTCATT : 600
 * 560 * 580 * 600
 TrCSa : AGCTCACGAATTGCGAAGTCGTGCAAAAATCCCAGAGTATGCTTACAAGGCAATTGATGC : 660
 * 620 * 640 * 660
 TrCSa : ACTGCCTGTTTCTGCTCATCCAATGACACAATTTAGTACTGGTGTAAATGGCCCTCCAGGT : 720
 * 680 * 700 * 720
 TrCSa : GGAGAGTGAGTTTACAAAGGCATACGAGAGTGGGATACATAAGTCAAGGTATTGGGAGCC : 780
 * 740 * 760 * 780
 TrCSa : AACTTATGAGGATAGCTTGAATTTAATTGCTCGTTTGCCTGGAATTGCTGCCTATATTTA : 840
 * 800 * 820 * 840
 TrCSa : TCGACGGATATACAAGGATGGAAAAATCATACCATTGGATGATTCTTTGGATTATGGTGC : 900
 * 860 * 880 * 900

FIGURE 99

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TrCSa : * 920 * 940 * 960
AAACTATGCTCACATGTTAGGATTTGATGATCCAGAAACGCTGGAGTTTATGAGGCTGTA : 960

TrCSa : * 980 * 1000 * 1020
TATTTCTATCCATAGTGATCATGAAGGNGGCAACGTTAGTTCTCACACAGCTCACCTAGT : 1020

TrCSa : * 1040 * 1060 * 1080
TGCTAGTTCACTATCAGATCCTTATCTTGCATTTCGCAGCTGCTCTGAATGGTTTAGCTGG : 1080

TrCSa : * 1100 * 1120 * 1140
CCCACTGCATGGTTTAGCCAATCAGGAAGTTCTACGATGGATCAGAAACATAGTTAAGGA : 1140

TrCSa : * 1160 * 1180 * 1200
GTTTGGAAC TCCAAACATAAGTACAGAACAATTGAGCGACTACATTCATAAAACATTGAA : 1200

TrCSa : * 1220 * 1240 * 1260
CAGTGGCCAGGTTGTGCCTGGATATGGACATGGAGTTTTGCGCAATACAGACCCAAGATA : 1260

TrCSa : * 1280 * 1300
CACTTGCCAGAGGGAGTTTGCATTGAAGCATTTGCCTAATGATCCAN : 1307

FIGURE 99 (cont.)

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TrCSa : * 20 * 40 * 60
 : MAFFRSVSALSCLRVRVGGQPSLANSVRWLQTPSSSNTDLYSEMKELVPEYQERVVKLKK : 60

TrCSa : * 80 * 100 * 120
 : DHGSVELGKITADMVLGGMRGMTALVWLGSVDPDEGIRFRGMTIPDCQKTLPGAFFPGGE : 120

TrCSa : * 140 * 160 * 180
 : PLPEAILWLLLTGKVPSKEQVDSLAEHLRSRAKIPYAYKAIDALPVSHPMTQFSTGVM : 180

TrCSa : * 200 * 220 * 240
 : ALQVESEFTKAYESGIHKSRYWEPTYEDSLNLIARLPGIAAYIYRRIYKDGKIIPLDLDDL : 240

TrCSa : * 260 * 280 * 300
 : DYGANVAHMLGFDDPETLEFMRLYISIHSDHEGNVSSHTAHLVASSLSDPYLAFAAALNG : 300

TrCSa : * 320 * 340 * 360
 : LAGPLHGLANQEVLRWIRNIVKEFGTPNISTEQLSDYIHKTLSNGQVVPGYGHGVLRNTD : 360

TrCSa : *
 : PRYTCQREFALKHLPNDP : 378

FIGURE 100

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		*	20	*	40	*	60
TrCSa1	:	GNNNCNCNACCATTACGTTAATTACATTTTC	TTTCTTTCGCCTTGTTCTTTCTCTTCTCAA	:	60		
TrCSa2	:	-----ACATTCTGTAATTTCTTTCTTTTCGCCTTGTTCTTTCTCTTCT-AA	:	45			
TrCSa3	:	-----	:	-			
TrCSa4	:	-----	:	-			
TrCSa5	:	-----	:	-			
TrCSa6	:	-----	:	-			
TrCSa7	:	-----	:	-			
		*	80	*	100	*	120
TrCSa1	:	TATAAAGACCAATTCAATTCCCAATTCTTTTGGATCCGAAATCATTCTACGCTTCT	:	120			
TrCSa2	:	TATAAAGACC-ATTCAATTCCCAATTCTTTTGGATCCGAAATCATTCTACGCTTCT	:	104			
TrCSa3	:	-----TACCGTAATC-TTTCTTTC-TACTTTTNCATTCNCTTCGNCT	:	40			
TrCSa4	:	-----GTNCCCGAAA	:	10			
TrCSa5	:	-----	:	-			
TrCSa6	:	-----	:	-			
TrCSa7	:	-----	:	-			
		*	140	*	160	*	180
TrCSa1	:	TCTCTCTTCTCTGCGTTTCAAACCCTAGTTGTTTGTGATTGATCTTAATGGCGTTCTT	:	180			
TrCSa2	:	TCTCTCTTCTCTGCGTTTCAAACCCTAGTTGTTTGTGATTGATCTTAATGGCGTTCTT	:	164			
TrCSa3	:	TCTTTCTCTCTCTGCGTTTCAAACCCTAGTTGTTTGTGATTGATCTAAATGGCGTTCTT	:	100			
TrCSa4	:	TCTTTCTCTCTCTGCGTTTCAAACCCTAGTTGTTTGTGATTGATCTAAATGGCGTTCTT	:	67			
TrCSa5	:	-----	:	-			
TrCSa6	:	-----	:	-			
TrCSa7	:	-----	:	-			
		*	200	*	220	*	240
TrCSa1	:	TCGAAGCGTTTCTGCGCTTTCAAACCTACGATCTCGTGTGGGTCAACAACCTAGTCTTGC	:	240			
TrCSa2	:	TCGAAGCGTTTCTGCGCTTTCAAACCTACGATCTCGTGTGGGTCAACAACCTAGTCTTGC	:	224			
TrCSa3	:	TCGAAGCGTTTCTGCGCTTTCAAACCTACGATCTCGTGTGGGTCAACAACCTAGTCTTGC	:	160			
TrCSa4	:	TCGAAGCGTTTCTGCGCTTTCAAACCTACGATCTCGTGTGGGTCAACAACCTAGTCTTGC	:	127			
TrCSa5	:	-----	:	-			
TrCSa6	:	-----	:	-			
TrCSa7	:	-----	:	-			
		*	260	*	280	*	300
TrCSa1	:	TAATTCAGTTAGATGGCTCCAAACTCCAAGCTCCAGTAACACTGATCTTTATTCTGAGAT	:	300			
TrCSa2	:	TAATTCAGTTAGATGGCTCCAAACTCCAAGCTCCAGTAACACTGATCTTTATTCTGAGAT	:	284			
TrCSa3	:	TAATTCAGTTAGATGGCTCCAAACTCCAAGCTCCAGTAACACTGATCTTTATTCTGAGAT	:	220			
TrCSa4	:	TAATTCAGTTAGATGGCTCCAAACTCCAAGCTCCAGTAACACTGATCTTTATTCTGAGAT	:	187			
TrCSa5	:	-----	:	-			
TrCSa6	:	-----	:	-			
TrCSa7	:	-----	:	-			
		*	320	*	340	*	360
TrCSa1	:	GAAGGAGCTAGTTCCAGAGTATCAGGAACGTGTTAAGAAGTTGAAGAAAGACCATGGAAG	:	360			
TrCSa2	:	GAAGGAGCTAGTTCCAGAGTATCAGGAACGTGTTAAGAAGTTGAAGAAAGACCATGGAAG	:	344			
TrCSa3	:	GAAGGAGCTAGTTCCAGAGTATCAGGAACGTGTTAAGAAGTTGAAGAAAGATCATGGAAG	:	280			
TrCSa4	:	GAAGGAGCTAGTTCCAGAGTATCAGGAACGTGTTAAGAAGTTGAAGAAAGACCATGGAAG	:	247			
TrCSa5	:	-----	:	-			
TrCSa6	:	-----	:	-			
TrCSa7	:	-----	:	-			

FIGURE 101

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      *           380           *           400           *           420
TrCSa1 : TGT TGA ATT TGGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : 420
TrCSa2 : TGT TGA ATT TGGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : 404
TrCSa3 : TGT TGA ATT TGGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : 340
TrCSa4 : TGT TGA ATT TGGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : 307
TrCSa5 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : 51
TrCSa6 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : 16
TrCSa7 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : -

      *           440           *           460           *           480
TrCSa1 : TTTAGTGTGGCTAGGCTCAGCTGTTGACCCAGATGAGGGAATTCGCTTTAGGGGCATGAC : 480
TrCSa2 : TTTAGTGTGGCTAGGCTCAGCTGTTGACCCAGATGAGGGAATTCGCTTTAGGGGCATGAC : 464
TrCSa3 : TTTAGTGTGGCTAGGCTCAGCTGTTGACCCAGATGAGGGAATTCGCTTTAGGGGCATGAC : 400
TrCSa4 : TTTAGTGTGGCTAGGCTCAGCTGTTGACCCAGATGAGGGAATTCGCTTTAGGGGCATGAC : 367
TrCSa5 : TTTAGTGTGGCTAGGCTCAGCTGTTGACCCAGATGAGGGAATTCGCTTTAGGGGCATGAC : 111
TrCSa6 : TTTAGTGTGGCTAGGCTCAGCTGTTGACCCAGATGAGGGAATTCGCTTTAGGGGCATGAC : 74
TrCSa7 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : -

      *           500           *           520           *           540
TrCSa1 : AATTCCCTGACTGCCAGAAAACACTTCCAGGTGCTTTTCCTGGTGGGGAGCCTTTGCCCCGA : 540
TrCSa2 : AATTCCCTGACTGCCAGAAAACACTTCCAGGTGCTTTTCCTGGTGGGGAGCCTTTGCCCCGA : 524
TrCSa3 : AATTCCCTGACTGCCAGAAAACACTTCCAGGTGCTTTTCCTGGTGGGGAGCCTTTGCCCCGA : 460
TrCSa4 : AATTCCCTGACTGCCAGAAAACACTTCCAGGTGCTTTTCCTGGTGGGGAGCCTTTGCCCCGA : 427
TrCSa5 : AATTCCCTGACTGCCAGAAAACACTTCCAGGTGCTTTTCCTGGTGGGGAGCCTTTGCCCCGA : 171
TrCSa6 : AATTCCCTGACTGCCAGAAAACACTTCCAGGTGCTTTTCCTGGTGGGGAGCCTTTGCCCCGA : 133
TrCSa7 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : -

      *           560           *           580           *           600
TrCSa1 : GGCTATACTGTGGCTTCTATTGACCGGAAAGGTACCAAGTAAAGAGCAAGTAGATTCATT : 600
TrCSa2 : GGCTATACTGTGGCTTCTATTGACCGGAAAGGTACCAAGTAAAGAGCAAGTAGATTCATT : 584
TrCSa3 : GGCTATACTGTGGCTTCTATTGACCGGAAAGGTACCAAGTAAAGAGCAAGTAGATTCATT : 520
TrCSa4 : GGCTATACTGTGGCTTCTATTGACCGGAAAGGTACCAAGTAAAGAGCAAGTAGATTCATT : 456
TrCSa5 : GGCTATACTGTGGCTTCTATTGACCGGAAAGGTACCAAGTAAAGAGCAAGTAGATTCATT : 231
TrCSa6 : GGCTATACTGTGGCTTCTATTGACCGGAAAGGTACCAAGTAAAGAGCAAGTAGATTCATT : 193
TrCSa7 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : -

      *           620           *           640           *           660
TrCSa1 : AGCTCACGAATTGCGAAGTCGTGCAAAAATCCCAGAGTATGCTTACAAGGCAATTGATGC : 660
TrCSa2 : AGCTCACGAATTGCGAAGTCGTGCAAAAATCCCAGAGTATGCTTACAAGGCAATTGATGC : 588
TrCSa3 : AGCTCACGAATTGCGAAGTCGTGCAAAAATCCCAGAGTATGCTTACAAGGCAATTGATGC : 580
TrCSa4 : AGCTCACGAATTGCGAAGTCGTGCAAAAATCCCAGAGTATGCTTACAAGGCAATTGATGC : -
TrCSa5 : AGCTCACGAATTGCGAAGTCGTGCAAAAATCCCAGAGTATGCTTACAAGGCAATTGATGC : 291
TrCSa6 : AGCTCACGAATTGCGAAGTCGTGCAAAAATCCCAGAGTATGCTTACAAGGCAATTGATGC : 253
TrCSa7 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : -

      *           680           *           700           *           720
TrCSa1 : ACTGCCTGTTTCTGCTCATCCAATGACACAAN----- : 692
TrCSa2 : ACTGCCTGTTTCTGCTCATCCAATGACACAAN----- : -
TrCSa3 : ACTGCCTGTTTCTGCTCATCCAATGACACAATTTAGTACTGGTGTAATGGCCCTCCAGGT : 640
TrCSa4 : ACTGCCTGTTTCTGCTCATCCAATGACACAATTTAGTACTGGTGTAATGGCCCTCCAGGT : -
TrCSa5 : ACTGCCTGTTTCTGCTCATCCAATGACACAATTTAGTACTGGTGTAATGGCCCTCCAGGT : 351
TrCSa6 : ACTGCCTGTTTCTGCTCATCCAATGACACAATTTAGTACTGGTGTAATGGCCCTCCAGGT : 313
TrCSa7 : -----G TGG AAAAA TCACAGCTGATATGGTACTTGGTGGAATGAGAGGAATGACTGC : -

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FIGURE 101 (cont.)

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          *           740           *           760           *           780
TrCSa1 : ----- : -
TrCSa2 : ----- : -
TrCSa3 : GGAGAGTGAGTTTACAAAGGCATATGAGAGTGGGATACATN----- : 681
TrCSa4 : ----- : -
TrCSa5 : GGAGAGTGAGTTTACAAAGGCATACGAGAGTGGGATACATAAGTCAAGGTATTGGGAGCC : 411
TrCSa6 : GGAGAGTGAGTTTACAAAGGCATACGAGAGTGGGATACATAAGTCAAGGTATTGGGAGCC : 373
TrCSa7 : -----CCTGAGAGTGGGA-NCT-AGT-AAGC-ATTGGGAGCC : 34

```

```

          *           800           *           820           *           840
TrCSa1 : ----- : -
TrCSa2 : ----- : -
TrCSa3 : ----- : -
TrCSa4 : ----- : -
TrCSa5 : AACTTATGAGGATAGCTTGAATTTAATTGCTCGTTTGCTGGAATTGCTGCCTATATTTA : 471
TrCSa6 : AACTTATGAGGATAGCTTGAATTTAATTGCTCGTTTGCTGGAATTGCTGCCTATATTTA : 433
TrCSa7 : -ACTTATGAGGAT-GCTTGAATTTAATTGCTCGTTTGCTGGAATTGCTGCCTATATTTA : 92

```

```

          *           860           *           880           *           900
TrCSa1 : ----- : -
TrCSa2 : ----- : -
TrCSa3 : ----- : -
TrCSa4 : ----- : -
TrCSa5 : TCGACGGATATACAAGGATGGAAAAATCATACCATTGGATGATTCTTTGGATTATGGTGC : 531
TrCSa6 : TCGACGGATATACAAGGATGGAAAAATCATACCATTGGATGATTCTTTGGATTATGGTGC : 493
TrCSa7 : TCGACGGATATACAAGGATGGAAAAATCATACCATTGGATGATTCTTTGGATTATGGTGC : 152

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```

          *           920           *           940           *           960
TrCSa1 : ----- : -
TrCSa2 : ----- : -
TrCSa3 : ----- : -
TrCSa4 : ----- : -
TrCSa5 : AAACATGCTCACATGTTAGGATTTGATGATCCAGAAACGCTGGAGTTTATGAGGCTGTA : 591
TrCSa6 : AAACATGCTCACATGTTAGGATTTGATGATCCAGAAACGCTGGAGTTTATGAGGCTGTA : 553
TrCSa7 : AAACATGCTCACATGTTAGGATTTGATGATCCAGAAACGCTGGAGTTTATGAGGCTGTA : 212

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```

          *           980           *           1000          *           1020
TrCSa1 : ----- : -
TrCSa2 : ----- : -
TrCSa3 : ----- : -
TrCSa4 : ----- : -
TrCSa5 : TATTTCTATN----- : 601
TrCSa6 : TATTTCTATCCATAGTGATCATGAAGGN----- : 581
TrCSa7 : TATTTCTATCCATAGTGATCATGAAGGTGGCAACGTTAGTTCTCACACAGCTCACCTAGT : 272

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```

          *           1040          *           1060          *           1080
TrCSa1 : ----- : -
TrCSa2 : ----- : -
TrCSa3 : ----- : -
TrCSa4 : ----- : -
TrCSa5 : ----- : -
TrCSa6 : ----- : -
TrCSa7 : TGCTAGTTCACTATCAGATCCTTATCTTGCAATTCGCAGCTGCTCTGAATGGTTTAGCTGG : 332

```

FIGURE 101 (cont.)

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	*	1100	*	1120	*	1140	
TrCSa1 :	-----						:
TrCSa2 :	-----						:
TrCSa3 :	-----						:
TrCSa4 :	-----						:
TrCSa5 :	-----						:
TrCSa6 :	-----						:
TrCSa7 :	<div style="background-color: black; color: white; padding: 2px;"> CCCACTGCATGGTTTAGCCAATCAGGAAGTTCACGATGGATCAGAAACATAGTTAAGGA </div>						: 392

	*	1160	*	1180	*	1200	
TrCSa1 :	-----						:
TrCSa2 :	-----						:
TrCSa3 :	-----						:
TrCSa4 :	-----						:
TrCSa5 :	-----						:
TrCSa6 :	-----						:
TrCSa7 :	GTTTGGAACTCCAAACATAAGTACAGAACAAATTGAGCGACTACATTTCATAAAACATTGAA						: 452

	*	1220	*	1240	*	1260	
TrCSa1 :	-----						:-
TrCSa2 :	-----						:-
TrCSa3 :	-----						:-
TrCSa4 :	-----						:-
TrCSa5 :	-----						:-
TrCSa6 :	-----						:-
TrCSa7 :	CAGTGGCCAGGTTGTGCCTGGATATGGACATGGAGTTTTCGCAATACAGACCCAAGATA						: 512

	*	1280	*	1300	
TrCSa1	:	-----	:	-----	:
TrCSa2	:	-----	:	-----	:
TrCSa3	:	-----	:	-----	:
TrCSa4	:	-----	:	-----	:
TrCSa5	:	-----	:	-----	:
TrCSa6	:	-----	:	-----	:
TrCSa7	:	CACTTGCCAGAGGGAGTTTGCATTGAAGCATTGCCTAATGATCCAN			: 559

FIGURE 101 (cont.)

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TrCSb : C N T T T C N T T T C C A G C A T C C T A A T C C T A A T C C T A A T C C T A A T C C T A T T A C T A A T T A C T A : 60

TrCSb : A T T A C T A A T T A C T A G T A C T A A T T A G T A A T A C C G A T C C C T T T T T C T C G A A C C C A T T C A T T C : 120

TrCSb : A A G N A G A A G A G G A A A A C A A A A T C C A C A C A A A C A A C A T C T T A C A A C A A T G T C A A C G A C : 180

TrCSb : A A C T A C T A C A A C C G A C G A A T C C A A G C T G C A C G A C G C T G C A C G G A A C C G T T T G G C C A C C C T : 240

TrCSb : C T C A G C T C A C T T G C T T C C T T C C T C C A C A A C C T C C G C C G C G C T C C T C C A T C C T A T T C A C C T : 300

TrCSb : T T C T T C T T C C T C C G G G A T C T C C C C A C C G T C T A A T G T C A A G G A A C A C T C A C C G T T G T T G A : 360

TrCSb : T G A A C G T A C C G G G A A G A A G T A T A C C A T T G A G G T C T C T C C T G A T G G C A C C G T T A A G C C A A : 420

TrCSb : T G A T T T C A A G A A G A T A T C A A C T G G G A A G A A T G A T A A G G G A C T C A A A C T T T A T G A T C C T G G : 480

TrCSb : A T A T T T A A A C A C T G C T C C T G T G C G A T C A A C A A T T T C T T A T A T T G A T G G T G A T G A G G G A A T : 540

TrCSb : C C T T A G A T A T A G A G G A T A C C C C A T T G A G G A G T T G G C C G A G A A A G C A C C T T T C C G G A A G T : 600

TrCSb : G G C A T A T C T C A T A T T G T A T G G A A A T T G C C T T C T G C A A A T C A G T T A C A A G A A T G G G A A T T : 660

TrCSb : T G C T A T A T C T C A G C A T T C A G C C T T A C C T C A A G G A G T T T T G G A T C T C A T A C A A T C A A T G C C : 720

TrCSb : T C A A G A T G C A C A T C C T A T G G G C G T C C T A G T G A A T G C A A T A A G C G C T C T G T C T G T T T T T C A : 780

TrCSb : T C C T G A C G C A A A T C C T G C T C T C A G A G G T C T T G A C A T C T A C A A C T C A A A G C A A G T G A G A G A : 840

TrCSb : C A A C A A A T A G C A C G G A T T A T T G G A A G A T A C A C A A A T T G C T G C T G C A A T T A A T C T T A G : 900

FIGURE 102

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TrCSb : * 920 * 940 * 960
AATGGCAGGAAGGCCACCTGTGCTTCCATCCAACAACTATCTTACACAGAGAACTTCCT : 960

TrCSb : * 980 * 1000 * 1020
ATACATGCTTGATTCTCTAGGCAATCGGTCATATAAACCCCAACCCTCAGCTAACTCGTGC : 1020

TrCSb : * 1040 * 1060 * 1080
ACTAGACATCATCTTCATCCTGCATGCAGAACATGAAATGAATTGCTCTACATCTGCTGT : 1080

TrCSb : * 1100 * 1120 * 1140
ACGACACCTTGCAATCAAGCGGCGTCGATGTATACACTGCTATTGCTGGAGGTGTTGGAGC : 1140

TrCSb : * 1160 * 1180 * 1200
TCTGTATGGACCTCTTCATGGTGGAGCTAATGAGGCGGTCCTTAAAATGCTGAGTGAAAT : 1200

TrCSb : * 1220 * 1240
TGGAAGTGTCGATAACATTCCAGAGTTCATTGAAGGTGTTAANN : 1244

FIGURE 102 (cont.)

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TrCSb : M S T T T T T T D E S K L H D A A R N R L A T L S A H L L P S S T T S A A L L H P I H L S S S S G I S P P S N V K G T L : 60

TrCSb : T V V D E R T G K K Y T I E V S P D G T V K A N D F K K I S T G K N D K G L K L Y D P G Y L N T A P V R S T I S Y I D G : 120

TrCSb : D E G I L R Y R G Y P I E E L A E K S T F P E V A Y L I L Y G N L P S A N Q L Q E W E F A I S Q H S A L P Q G V L D L I : 180

TrCSb : Q S M P Q D A H P M G V L V N A I S A L S V F H P D A N P A L R G L D I Y N S K Q V R D K Q I A R I I G K I T T I A A A : 240

TrCSb : I N L R M A G R P P V L P S N K L S Y T E N F L Y M L D S L G N R S Y K P N P Q L T R A L D I I F I L H A E H E M N C S : 300

TrCSb : T S A V R H L A S S G V D V Y T A I A G G V G A L Y G P L H G G A N E A V L K M L S E I G S V D N I P E F I E G V X : 358

FIGURE 103

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      *           20           *           40           *           60
TrCSb1 : C N T T T C N T T T C C A C A G C A T C C T A A T C C T A A T C C T A A T C C T A T T A C T A A T T A C T A : 60
TrCSb2 : ----- : -
TrCSb3 : ----- : -
TrCSb4 : ----- : -
TrCSb5 : ----- : -
TrCSb6 : ----- : -
TrCSb7 : ----- : -

      *           80           *           100          *           120
TrCSb1 : A T T A C T A A T T A C T A G T A C T A A T T A G T A A T A C C G A T C C C T T T T T C T C G A A C C C A T T C A T T C : 120
TrCSb2 : ----- : -
TrCSb3 : ----- : -
TrCSb4 : ----- : -
TrCSb5 : ----- : -
TrCSb6 : ----- : -
TrCSb7 : ----- : -

      *           140          *           160          *           180
TrCSb1 : A A T T C A A G A A G G A A A A A C A A A A T - C A C A C A A A C A A C A T C T T A C A A C A A T G T C A A C G A C : 179
TrCSb2 : -- G N A G N A G A A G G A A A A C - A A A T C C A C A A C - A A A A C - T C T T A C A A C A A T G T C A A C G A C : 55
TrCSb3 : -- G N N G N A G A A G G A A A A C A C A A A T T C A C A A A G A A A A C A T C T T A C A A C A A T G T C A A C G A C : 58
TrCSb4 : ----- G N A A A G A G G A A A A A C - A A A T - N C A C A A A C - A A C A T C T T A C - A C A A T G T C - A C G A C : 50
TrCSb5 : ----- G N A A A G A G G A A A A A C - A A A T - N C - C A A A C - A A C - T C T T A C - A C A A T G T C - A C G A C : 45
TrCSb6 : ----- : -
TrCSb7 : ----- : -

      *           200          *           220          *           240
TrCSb1 : A A C T A C T A C A A C C G A C G A A T C C A A G C T G C A C G A C G C T G C A C G G A A C C G T T T G G C T T A C C C T : 239
TrCSb2 : A A C T A C T A C A A C C G A C G A A T C C A A G C T G C A C G A C G C T G C A C G G A A C C G T T T G G C C A C C C T : 115
TrCSb3 : A A C T A C T A C A A C C G A C G A A T C C A A G C T G C A C G A C G C T G C A C G G A A C C G T T T G G C C A C C C T : 118
TrCSb4 : A A C T A C T A C A A C C G A C G A A T C C A A G C T G C A C G A C G C T G C A C G G A A C C G T T T A G C C A C C C T : 110
TrCSb5 : A A C T A C T A C A A C C G A C G A A T C C A A G C T G C A C G A C G C T G C A C G G A A C C G T T T G G C T T A C C C T : 105
TrCSb6 : ----- : -
TrCSb7 : ----- : -

      *           260          *           280          *           300
TrCSb1 : C T C A G C T C A C T T G C T T C C T T C C T C C A C A A A C T C C G C T T G C G C T T C T C C A T C C T A T C C A C C T : 299
TrCSb2 : C T C A G C T C A C T T G C T T C C T T C C T C C A C A A C C T C C G C C G C G C T C C T C C A T C C T A T T C A C C T : 175
TrCSb3 : C T C A G C T C A C T T G C T T C C T T C C T C C A C A A C C T C C G C C G C G C T C C T C C A T C C T A T T C A C C T : 178
TrCSb4 : C T C A G C T C A C T T G C T T C C T T C C T C C A C A A C C T C C G C C G C G C T C C T C C A T C C T A T T C A C C T : 170
TrCSb5 : C T C A G C T C A C T T G C T T C C T T C C T C C A C A A A C T C C G C T T G C G C T T C T C C A T C C T A T C C A C C T : 165
TrCSb6 : ----- : -
TrCSb7 : ----- : -

      *           320          *           340          *           360
TrCSb1 : T T C T T C T T C C T C T T G G G A T C T C C C A C C G T C T A A T G T C A A A G G A A C A C T C A C C G T T G T T G A : 359
TrCSb2 : T T C C G C T T C C T C C G G G A T C T C C C A C C G T C T A A T G T C A A A G G A A C A C T C A C C G T T G T T G A : 235
TrCSb3 : T T C C G C T T C C T C C G G G A T C T C C C A C C G T C T A A T G T C A A A G G A A C A C T C A C C G T T G T T G A : 238
TrCSb4 : T T C T T C T T C C T C C G G G A T C T C C C A C C G T C T A A T G T C A A A G G A A C A C T C A C C G T T G T T G A : 230
TrCSb5 : T T C T T C T T C C T C T G G G A T C T C C C A C C G T C T A A T G T C A A A G G A A C A C T C A C C G T T G T T G A : 225
TrCSb6 : ----- : -
TrCSb7 : ----- : -

```

FIGURE 104

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	*	380	*	400	*	420	
TrCSb1 :	TGAACGTACCGGGAAGAAGTATACCATTTGAGGTCTCTCCTGATGGCACCGTTAAAGCCAA						: 419
TrCSb2 :	TGAACGTACCGGGAAGAAGTATACCATTTGAGGTCTCTCCTGATGGCACCGTTAAAGCCAA						: 295
TrCSb3 :	TGAACGTACCGGGAAGAAGTATACCATTTGAGGTCTCTCCTGATGGCACCGTTAAAGCCAA						: 298
TrCSb4 :	TGAACGTACCGGGAAGAAGTATACCATTTGAGGTCTCTCCTGATGGCACCGTTAAAGCCAA						: 290
TrCSb5 :	TGAACGTACCGGGAAGAAGTATACCATTTGAGGTCTCTCCTGATGGCACCGTTAAAGCCAA						: 285
TrCSb6 :	-----						: -
TrCSb7 :	-----						: -

	*	440	*	460	*	480	
TrCSb1 :	TGATTTCAAGAAGATATCAACTGGGAAGAATGATAAGGGCTCAAACCTTTATGATCCTGG						: 479
TrCSb2 :	TGATTTCAAGAAGATATCAACTGGGAAGAATGATAAGGGACTCAAACCTTTATGATCCTGG						: 355
TrCSb3 :	TGATTTCAAGAAGATATCAACTGGGAAGAATGATAAGGGACTCAAACCTTTATGATCCTGG						: 358
TrCSb4 :	TGATTTCAAGAAGATATCAACTGGGAAGAATGATAAGGGACTCAAACCTTTATGATCCTGG						: 350
TrCSb5 :	TGATTTCAAGAAGATATCAACTGGGAAGAATGATAAGGGCTCAAACCTTTATGATCCTGG						: 345
TrCSb6 :	-----						: -
TrCSb7 :	-----A-----						: 1

	*	500	*	520	*	540	
TrCSb1 :	ATATTTAAACACTGCTCCTGTGCGATCAACAATTTCTTATATTGATGGTGATGAGGGAAT						: 539
TrCSb2 :	ATATTTAAACACTGCTCCTGTGCGATCAACAATTTCTTATATTGATGGTGATGAGGGAAT						: 415
TrCSb3 :	ATATTTAAACACTGCTCCTGTGCGATCAACAATTTCTTATATTGATGGTGATGAGGGAAT						: 418
TrCSb4 :	ATATTTAAACACTGCTCCTGTGCGATCAACAATTTCTTATATTGATGGTGATGAGGGAAT						: 410
TrCSb5 :	ATATTTAAACACTGCTCCTGTGCGATCAACAATTTCTTATATTGATGGTGATGAGGGAAT						: 405
TrCSb6 :	-----						: -
TrCSb7 :	-----						: -

	*	560	*	580	*	600	
TrCSb1 :	CCTTAGATATAGAGGATACCCCATTTGAAGAGTTGGCCGAGAAAAGCACCTTTCCGGAAGT						: 599
TrCSb2 :	CCTTAGATATAGAGGATACCCCATTTGAGGAGTTGGCCGAGAAAAGCACCTTTCCGGAAGT						: 475
TrCSb3 :	CCTTAGATATAGAGGATACCCCATTTGAGGAGTTGGCCGAGAAAAGCACCTTTCCGGAAGT						: 478
TrCSb4 :	CCTTAGATATAGAGGATACCCCATTTGAGGAGTTGGCCGAGAAAAGCACCTTTCCGGAAGT						: 470
TrCSb5 :	CCTTAGATATAGAGGATACCCCATTTGAAGAGTTGGCCGAGAAAAGCACCTTTCCGGAAGT						: 465
TrCSb6 :	-----ATAGAGGGT-----CCNATTGAGGAGTTGG-----CGAGAAAAGCACCTTTTATGGAAGT						: 49
TrCSb7 :	-----						: -

	*	620	*	640	*	660	
TrCSb1 :	GGCATATCTN-----						: 609
TrCSb2 :	GGCATATCTCATATTGTATGGAATTTGCCTTCTGCAAATCAGTTACAAGAATGGGAATT						: 535
TrCSb3 :	GGCATATCTCATATTGTATGGAATTTGCCTTCTGCAAATCAGTTACAAGAATGGGAATT						: 538
TrCSb4 :	GGCATATCTCATATTGTATGGAATTTGCCTTCTGCAAATCAGTTACAAGAATGGGAATT						: 530
TrCSb5 :	GGCATATCTCATATTGTATGGAATTTGCCTTCTGCAAATCAGTTACAAGAATGGGAATT						: 525
TrCSb6 :	GTCCTATCT-ATAATTGTATGGAATTTACCTACTGAAAGTAAGTTAGCTGAATGGAAATT						: 108
TrCSb7 :	-----GAATGGGAATT						: 12

	*	680	*	700	*	720	
TrCSb1 :	-----						: -
TrCSb2 :	TGCTATATCTCAGCATTACGCTTACCTCAAGGAGTTTGGATCTCATACAATN-----						: 589
TrCSb3 :	TGCTATATCTCAGCATTACGCTTACCTCAAGGAGTTTGGATCTCATACAATCENN-----						: 594
TrCSb4 :	TGCTATATCTCAGCATTACGCTTACCTCAAGGAGTTTNN-----						: 570
TrCSb5 :	TGCTATATCTCAGCATTACGCTTACCTCAAGGAGTTTGGATCTCATACAATCAATGCC						: 585
TrCSb6 :	CGCTATATCTCAGCATTACGCTTACCTCAAGGAGTTTGGATCTCATACAATCAATGCC						: 168
TrCSb7 :	TGCTATATCT-AGCATT-AGCCTTACCTCAAGGAGTTTGGATCTCATACAATCAATGCC						: 70

FIGURE 104 (cont.)

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	*	740	*	760	*	780	
TrCSb1 :	-----		-----		-----		-
TrCSb2 :	-----		-----		-----		-
TrCSb3 :	-----		-----		-----		-
TrCSb4 :	-----		-----		-----		-
TrCSb5 :	TCAAGNN		-----		-----		592
TrCSb6 :	TCAAGATGCACATCCTATGGG		GTCCTAGTGAATGCAATAAGCGCTCT		TCTGTTTTTCA		228
TrCSb7 :	TCAAGATGCACATCCTATGGGCGT		CTTGTAAATGCTTAAG		GCTTGTCTGTTTTTCA		130
	*	800	*	820	*	840	
TrCSb1 :	-----		-----		-----		-
TrCSb2 :	-----		-----		-----		-
TrCSb3 :	-----		-----		-----		-
TrCSb4 :	-----		-----		-----		-
TrCSb5 :	-----		-----		-----		-
TrCSb6 :	TCCTGACGC		GAATCCTGCTCT		AGAGGTCTTGAT		288
TrCSb7 :	TCCTGAT		GCAAATCCTGCTCT		CAGAGTCTTGACATCTACA		190
	*	860	*	880	*	900	
TrCSb1 :	-----		-----		-----		-
TrCSb2 :	-----		-----		-----		-
TrCSb3 :	-----		-----		-----		-
TrCSb4 :	-----		-----		-----		-
TrCSb5 :	-----		-----		-----		-
TrCSb6 :	CAAACAAATAGCACGGATTATTGGAAGAT		TA		AACAATTGCTGCTGCAGTT		348
TrCSb7 :	CAAACAAATAG		TCGGATTATTGGAAGATAACAACAATTGCTGCTGC		ATTAAATCTTAG		250
	*	920	*	940	*	960	
TrCSb1 :	-----		-----		-----		-
TrCSb2 :	-----		-----		-----		-
TrCSb3 :	-----		-----		-----		-
TrCSb4 :	-----		-----		-----		-
TrCSb5 :	-----		-----		-----		-
TrCSb6 :	AATGGCAGGAAGGCCACCTGTGCTTCCATCCAAC		CAACTATCTTACAC		TGAGAACTTCCT		408
TrCSb7 :	AATGG		AGGAAGGCCACCTGT		CTTCCATCCAACAACT		310
	*	980	*	1000	*	1020	
TrCSb1 :	-----		-----		-----		-
TrCSb2 :	-----		-----		-----		-
TrCSb3 :	-----		-----		-----		-
TrCSb4 :	-----		-----		-----		-
TrCSb5 :	-----		-----		-----		-
TrCSb6 :	ATACATGCTTGATTCT		TAGGCAATCGGTCATATAAACCC		AACCCTCAGCTAACTCGTGC		468
TrCSb7 :	TACATGCTTGATTCTCT		TGGCAATCGGTCATATAAAC		CTCCTCGTCTAACTCGTGC		370
	*	1040	*	1060	*	1080	
TrCSb1 :	-----		-----		-----		-
TrCSb2 :	-----		-----		-----		-
TrCSb3 :	-----		-----		-----		-
TrCSb4 :	-----		-----		-----		-
TrCSb5 :	-----		-----		-----		-
TrCSb6 :	ACTAGACAT		TATCTTCATCCTGCATGCAGAACATGAAATGAATTGCTCTACATCTGCTGT				528
TrCSb7 :	ACTGACATCATCTTCATCCT		TGCATGCAGAACATGAAATGAATTGCTCTACATCTGCTGT				430

FIGURE 104 (cont.)

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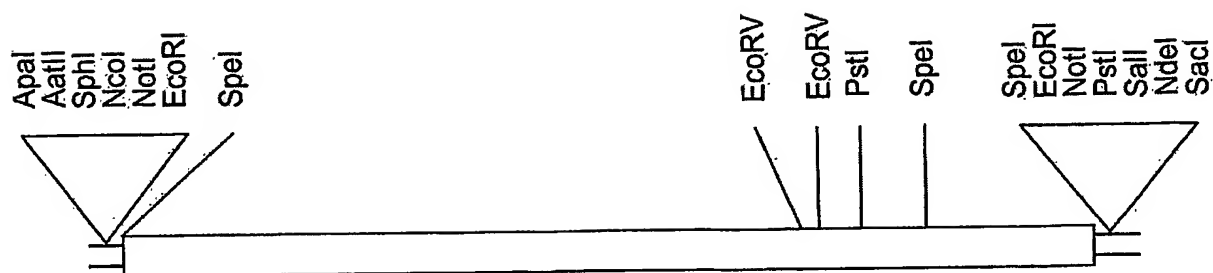
	*	1100	*	1120	*	1140	
TrCSb1 :	-----						-
TrCSb2 :	-----						-
TrCSb3 :	-----						-
TrCSb4 :	-----						-
TrCSb5 :	-----						-
TrCSb6 :	CCGACACCTTGCATCAAGCGGCGTGGATGTATAGACTGCTATTGCTGGCGN-----						579
TrCSb7 :	ACGCCACCTTGCATCAAGCGGCGTTCGATGTATACACTGCTATTGCTGGAGGTGTTGCAGC						490

	*	1160	*	1180	*	1200	
TrCSb1 :	-----						-
TrCSb2 :	-----						-
TrCSb3 :	-----						-
TrCSb4 :	-----						-
TrCSb5 :	-----						-
TrCSb6 :	-----						-
TrCSb7 :	TCTGTATGGACCTCTTCATGGTGGAGCTAATGAGGCGGTCCTTAAAATGCTGAGTGAAAT						550

	*	1220	*	1240	
TrCSb1 :	-----				-
TrCSb2 :	-----				-
TrCSb3 :	-----				-
TrCSb4 :	-----				-
TrCSb5 :	-----				-
TrCSb6 :	-----				-
TrCSb7 :	TGGAAGTGTCGATAACATTCCAGAGTTCATTGAAGGTGTTAANN				594

FIGURE 104 (cont.)

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TrMDH

FIGURE 105

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1  GGCCGCGAAT  TCACTAGTGA  TTAAGCAGTG  GTAACAACGC  AGAGTACGCG
51  GGGGTAGGCG  GAGATTTCAA  ACCCAATTTT  CCTCTTAAAT  CTCTCCCAAC
101 TTCTCCTTCC  AATTCCCATT  ACCATTTCATT  CCCAGAGGTC  GAGATGGCAG
151 CATCAGCAGC  AGCTACTTTT  ACTATTGGAA  CTGCCCAAAC  AGGGAGGCCA
201 CTTCTCTCAAT  CAAACCCTTT  TGGTTTGAAA  GTCAATTCCC  AGGTTAATTT
251 TAAGACCTTC  TCTGGTCTCA  AGGCCATGTC  ATCTCTAAGA  TGCAGTCTG
301 AATCATCTTT  CTTTGGCAAC  GAACTAGTG  CTGCTCTGCG  TGCAACTTTT
351 GCACCCAAAG  CTCAAAAGGA  AAACCAAAAC  ATCAACCGCA  ATTTGCATCC
401 TCAGGCATCC  TACAAAGTGG  CGGTTCTTGG  TGCTGCAGGA  GGAATTGGTC
451 AGCCACTGGC  ACTTCTCATT  AAGATGTCGC  CTTTGGTTTC  CGACCTGCAT
501 CTTTATGATA  TCGCGAATGT  TAAGGGAGTT  GCTGCTGATA  TCAGTCATTG
551 CAACACTCCT  TCAAAGGTTT  TGGATTTTAC  AGGTGCTTCT  GAGTTGGCAA
601 ATTGTTTGAA  AGGTGTGGAT  GTAGTTGTTA  TACCTGCTGG  TGTTCCCAGA
651 AAACCTGGCA  TGACTCGTGA  TGACCTTTTC  AACATCAATG  CCGGTATAGT
701 CAGGGACTTG  GTCACCGCTG  TTGCAGATAA  TTGCCCTGGT  GCTTTTATTC
751 ATGTTATCAG  TAACCCGGTG  AACTCTACAG  TTCCTATTGC  TGCTGAAATT
801 CTGAAACAAA  AGGGTGTTTA  TGATCCTAAA  AAGCTCTTTG  GTGTTACTAC
851 ACTTGATGTT  GTGAGGGCAA  ACACATTTGT  TGCTCAGAAA  AAGAACCTGA
901 GGCTGATTGA  TGTAGATGTT  CCTGTTGTTG  GTGGTCATGC  CGGGATTACC
951 ATTCCTCCTC  TTCTGTCAAA  GACAAGACCC  TCAGCAAATT  TCACTGATGA
1001 AGAAATTGAG  GCGCTAAGTG  TCAGGATTCA  AAATGCTGGA  ACTGAAGTTG
1051 TTGAGGCCAA  GGCTGGTGCA  GGGTCTGCTA  CTTTGTCAAT  GGCCTATGCA
1101 GCAGCTAGAT  TTGTTGAATC  ATCTCTTCGT  GCGCTTGACG  GTGACGCTGA
1151 TGTGTATGAG  TGCTCATTTG  TACAGTCAGA  TCTGACTGAC  CTTCCGTTTT
1201 TTGCTTCAAG  GGTGAAGATT  GGTAGGAAAG  GAGTCGAGGC  TTTGATTCCA
1251 ACTGATCTCC  AAGGGTTGAG  TGAGTATGAG  CAGAAGGCTT  TGGAAGCACT
1301 TAAACCAGAA  CTTAAGGCTA  GCATTGAAAA  GGGTATTGCT  TTTGCTCAAA
1351 AGCAAACGTG  TTCTGCTTAA  CTTATTTTGT  GAAAGCATAT  ATTCTATACT
1401 CTCTAGCGTC  CATGCGAGAG  AATGTCAATG  GGTGATTTCT  TGGGTTATGG
1451 ATTTATTTGA  GCATGAATAC  TACTTAGAGG  ACTTAGATTG  CAGATTTATG
1501 TAGCATCATT  TACTGCTTCC  AGAACTTATG  ATTTAAATTT  TCCATAGTAT
1551 CATTTCTACT  TACAGATTTG  TTAGTAGAAC  GGGAGGGGCT  TCCATTTCTA
1601 TTCTCTATAT  TGAGCTTTAG  TTTTGATCAG  AAATCTCAAT  AGATTGTTAC
1651 TATCATGTAC  TACTAGAATT  GGAAAAATGT  AAACGTTGCA  TTTTGAATAA
1701 TACTGCCTTT  GGACTAGTTT  GTGTTTCGAA  AAAAAAAA

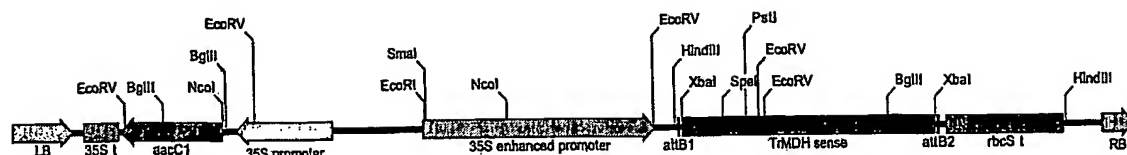
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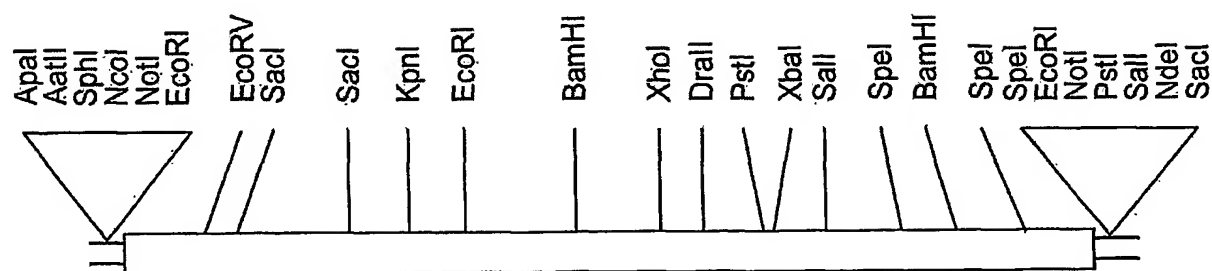
FIGURE 106

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1 MAASAAATFT IGTAQTGRPL PQSNPFGLKV NSQVNFKTFS GLKAMSSLRC
51 ESESSFFGNE TSAALRATFA PKAQKENQNI NRNLHPQASY KVAVLGAAGG
101 IGQPLALLIK MSPLVSDLHL YDIANVKGVA ADISHCNTPS KVLDFTGASE
151 LANCLKGV DV VVIPAGVPRK PGMTRDDL FN INAGIVRDLV TAVADNCPGA
201 FIHVISNPVN STVPAAEIL KQKGVYDPKK LFGVTTLDVV RANTFVAQKK
251 NLRLIDVDVP VVGGHAGITI LPLLSKTRPS ANFTDEEIEA LTVRIQNAGT
301 EVVEAKAGAG SATLSMAYAA ARFVESSLRA LDGDADVYEC SFVQSDLTDL
351 PFFASRVKIG RKGVEALIPT DLQGLSEYEQ KALEALKPEL KASIEKGIAF
401 AQKQTVSA

FIGURE 107

216/241**pPZP221:TrMDH sense****FIGURE 108**

217/241**TrPEPC****FIGURE 109**

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1 GAATTCGATT AAGCAGTGGT AACACGCAG AGTACGCGGG GATAACACTG
51 TCTCTCTGAT CCAAATTTTC CATCCCTTGT CTTCTTTTTC TTCTTCTTCC
101 TCGTATCTTA CTGCCTCATT ACACGGGTGA GAAGGAGTGA ATTGCTCCAA
151 TGGCAACAAA CAAAATGGAA AAAATGGCAT CAATTGATGC ACAGCTTAGA
201 CAATTAGTAC CAGCAAAAGT TAGTGAAGAT GATAAACTTA TTGAGTATGA
251 TGCTTTGTTG TTGGATCGGT TTCTTGATAT CCTTCAGGAT TTACATGGAG
301 AGGATCTGAA AGATTCTGTT CAAGAAGTGT ATGAACTTTC TGCGGAGTAT
351 GAAAGAAAGC ATGATCCTAA GAAACTTGAA GAGCTCGGAA ATTTGATAAC
401 AAGTTTAGAT GCAGGAGATT CAATTGTTGT TGCTAAGTCC TTTTCGCACA
451 TGCTTAACCT GGCCAACTTA GCTGAAGAGG TTCAGATTGC TCATCGTCGA
501 AGGAACAAGT TGAAGAAAGG AGATTTTAGG GATGAGAGCA ATGCAACTAC
551 CGAATCAGAC ATCGAAGAAA CTCCTAAGAG ACTTGTGTTT AATATGAAGA
601 AATCTCCTCA GGAAGTTTTT GATGCGTTGA AGAACCAGAC CGTTGATTTG
651 GTTCTTACTG CTCATCCTAC TCAGTCGGTT CGTAGGTCGT TGCTTCAAAA
701 GCATGGAAGG GTAAGGAACT GTTTATCTCA ATTGTATGCT AAAGACATCA
751 CTCCTGATGA TAAGCAAGAG CTCGACGAAG CTCTCCAGAG GGAGATTCAA
801 GCTGCATTCC GTACCGATGA AATCAAGAGG ACACCTCCAA CACCACAAGA
851 TGAGATGAGA GCAGGGATGA GTTACTTCCA CGAAACAATT TGAAGGGTG
901 TCCCTAAATT TCTTCGCCGT GTTGATACTG CGTTGAAGAA CATAGGGATT
951 AACGAACGTG TTCCCTATAA TGCTCCTCTT ATTCAGTTTT CTTCATGGAT
1001 GGGGGGTGAT CGTGATGGTA ATCCGAGAGT GACTCCTGAA GTAACGAGAG
1051 ATGTTTGCTT ACTAGCTAGA ATGATGGCTG CAAATTTGTA TTATCCCAG
1101 ATTGAAGATC TTATGTTTGA ACTGTCTATG TGGCGTTGCA ATGATGAGCT
1151 GCGTGATCGC GCAGAAGAAC TTCACAGGAA TTCCAAGAAA GATGAAGTTG
1201 CAAAACACTA CATAGAGTTT TGGAAAAAAA TTCTTTTGAA TGAACCGTAC
1251 CGTGTTATAC TTGGTGATGT AAGGGACAAG CTCTATCGTA CTCGTGAGCG
1301 GTCTCGCTAT CTCTTAGCTC ATGGCTATTC TGAAATTCCT GAGGAAGCCA
1351 CATTACCAA TGTTGATGAG TTCTTGGAAC CTCTTGAAC ATGCTACAGA
1401 TCACTCTGTG CTTGTGGTGA TCGTGCGGTT GCCGATGGAA GCCTTCTTGA
1451 TTTCTTGAGG CAAGTTTCCA CTTTGGACT GTCACTGGTA AGACTTGATA
1501 TAAGGCAGGA GTCAGATCGT CACACGGACG TGATGGATGC CATTACCAAA
1551 CATTTGGAAA TTGGATCCTA CCAAGATTGG TCTGAAGAAA AACGACAGGA
1601 ATGGCTTTTG TCTGAGTTGG TTGGCAAAAG GCCGCTTTTT GGACCTGATC
1651 TACCTCAAAC CGATGAAATT AGAGAAGTTT TAGAGACATT TCATGTCATA
1701 GCAGAACTTC CATCAGACAA CTTTGGAGCC TATATCATT CGATGGCAAC
1751 TGCCCCGTCT GATGTGCTGG CGGTTGAACT TCTTCAACGT GAATGCAAAA
1801 TCAAGAATCC GTTAAGAGTT GTTCCATTGT TTGAGAAACT TGCTGATCTC
1851 GAGTCTGCTC CTGCTGCTTT GGCTCGGTTG TTTTCGATAG ACTGGTACAT
1901 AAACCGTATC GATGGGAAGC AAGAAGTTAT GATTGGATAT TCTGATTCAG
1951 GTAAAGATGC TGGAAGGTTT TCTGCCGCAT GGCAGCTATA TAAGGCTCAG
2001 GAGGACCTCA TAAATGTTGC TCAGAAATAC GGTGTTAAGC TAACAATGTT
2051 CCATGGTCTG GGTGGAAC TGGAAGAGG AGGTGGACCT ACTCATCTTG
2101 CTATCTTGTC TCAACCACCA GACACAATTC ACGGATCTCT TCGTGTGACG
2151 GTTCAAGGTG AAGTTATTGA ACAGTCGTTT GGAGAGGAGC ACTTGTGCTT
2201 TAGAACGCTG CAGCGTTTCA CTGCTGCCAC TCTAGAACAC GGAATGCGTC
2251 CCCCAGTTC TCCAAAACCG GAATGGCGTG AATTGATGGA TCAGATGGCT
2301 GTCATTGCTA CCGAGGAGTA CCGTTCAATT GTGTTCAAGG AACCACGTTT
2351 TGTTGAGTAT TTCCGTCTGG CCACACCAGA GATGGAGTAC GGAAGGATGA
2401 ACATTGGAAG TCGACCGGCA AAAAGAAGGC CATGTGGAGG CATTGAAACA
2451 CTGCGTGCGA TACCATGGAT TTTTGCATGG ACACAGACAA GGTTCATCT
2501 TCCAGTATGG CTTGGCTTTG GAGCAGCTTT TAAACAAGTT ATTGCGAAGG
2551 ATGTTAAGAA TCTTCATATG CTGCAAGAGA TGTACAATCA ATGGCCTTTC
2601 TTTAGGGTCA CTATTGATT AGTCGAAATG GTGTTGCTA AGGGTGACCC
2651 TGGTATTGCA GCCCTGAATG ATAGGCTACT AGTTTCTCAG GATCTTTGGC
2701 CATTTGGGGA ACAGTTGAGA AGCAAATATG AAGAACTAA GAACTCCTA
2751 CTTCAGGTGG CAACACACAA GGAAGTTCTT GAAGGAGATC CCTACTTGAA
2801 ACAAAGACTC AGACTCCGTG ATTCTTACAT TACAACCCTT AACGTTTTTC
2851 AAGCATACAC ATTGAAACGG ATCCGTGATC CAAACTATAA GGTGGAGGTG

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FIGURE 110

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2901 CGCCCCCGCG TATCGAAAGA ATCTGCTGAA ACAAGTAAAT CGGCTGATGA
2951 ACTTGTAACA TTGAATCCAA CAAGTGAATA TGCTCCTGGT TTGGAAGACA
3001 CACTCATTCT CACCATGAAG GGTATTGCTG CTGGCATGCA AAACACTGGT
3051 TAAATTTTGG TGATTTTTTT CACTTGTATT TGTTTCCTTT ATGTTAAGTG
3101 TGTGCTAAGA TATCATAAAT ACTAGATGAA TCTAGTTGCA AGCACTTCAA
3151 GTGAGTGCTT TTTTTTTTCT TTTCCTTTT CCTTTTTCAT AAGAAACTCA
3201 CATCAGGTTT TGTTGATGTT TTTCCTTACT TTGTTACCAT ACAAACGAGT
3251 TAATGCAATT GATGTTATGT TTCAATGCAT AGATTTTATC TCCTTCTTC
3301 TAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AGTACTCTGC GTTGTTACCA
3351 CTGCTTAATC ACTAGTGAAT TC
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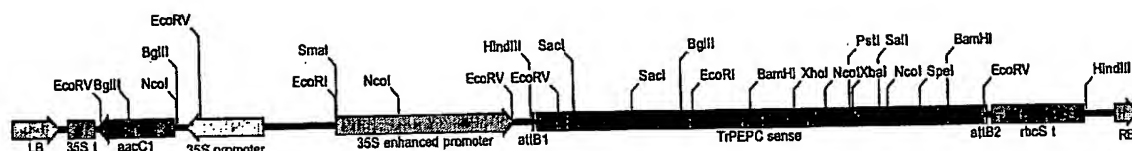
FIGURE 110 (cont.)

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1 MATNKMEKMA SIDAQLRQLV PAKVSEDDKL IEYDALLLDR FLDILQDLHG
51 EDLKDSVQEV YELSAEYERK HDPKKLEELG NLITSLDAGD SIVVAKSFSH
101 MLNLANLAEE VQIAHRRRNK LKKGDFRDES NATTESDIEE TLKRLVFNMK
151 KSPQEVFDAL KNQTVDLVLT AHPTQSVRRS LLQKHGRVRN CLSQLYAKDI
201 TPDDKQELDE ALQREIQAAF RTDEIKRTPP TPQDEMRAGM SYFHETIWKG
251 VPKFLRRVDT ALKNIGINER VPYNAPLIQF SSWMGGDRDG NPRVTPEVTR
301 DVCLLARMMA ANLYYSQIED LMFELSMWRC NDELRDRAEE LHRNSKKDEV
351 AKHYIEFWKK IPLNEPYRVI LGDVRDKLYR TRERSRYLLA HGYSEIPEEA
401 TFTNVDEFLE PLELCYRSLC ACGDRAVADG SLLDFLRQVS TFGLSLVRLD
451 IRQESDRHTD VMDAITKHLE IGSYQDWSEE KRQEWLLSEL VGKRPLFGPD
501 LPQTDEIREV LETFHVIAEL PSDNFGAYII SMATAPSDVL AVELLORECK
551 IKNPLRVVPL FEKLADLESA PAALARLFSI DWYINRIDGK QEVMIGYSDS
601 GKDAGRFSAA WQLYKAQEDL INVAQKYGVK LTMFHGRGGT VGRGGGPTH
651 AILSQPPDTI HGSLRVTVQG EVIEQSFGEE HLCFRTLQRF TAATLEHGMR
701 PPSSPKPEWR ELMDQMAVIA TEEYRSIVFK EPRFVEYFRL ATPEMEYGRM
751 NIGSRPAKRR PCGGIETLRA IPWIFAWTQT RFHLPVWLGF GAAFKQVIAK
801 DVKNLHMLQE MYNQWPFFRV TIDLVMVFA KGDPGIAALN DRLLVSQDLW
851 PFGEQLRSKY EETKKLLLQV ATHKEVLEGD PYLKQRLRLR DSYITTLLNVF
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951 TLILTMKGIA AGMQNTG

FIGURE 111

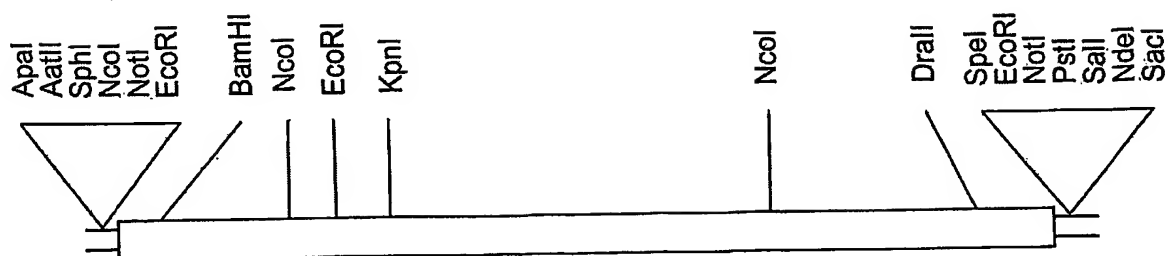
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pPZP221:TrPEPC sense

FIGURE 112

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TrCSa

FIGURE 113

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1 GAATTCGATT AAGCAGTGGT AACAAACGAG AGTACGCGGG GAGCACAACA
51 TTACGTTAAT TACATTTTCT CTTTCGCCAT TGTTCTTTCT CTTCTCAATA
101 TAAAGACCAA TTCAATTCCC AATTCTTTTG GATCCGAAAT CATTCAATCT
151 ACGCTTCTTC TCTCTTCTCT GCGTTTCAAA CCCTAGTTGT TTTGTTGATT
201 GATCTTAATG GCGTTCTTTC GAAGCGTTTC TGCGCTTTCA AAACACGAT
251 CTCGTGTGGG TCAACAACCT AGCTTGCTA ATTCAGTTAG ATGGCTCCAA
301 ACTCCAAGCT CCAGTAACAC TGATCTTTAT TCTGAGATGA AGGAGCTAGT
351 TCCAGAGTAT CAGGAACGTG TTAAGAAGTT GAAGAAAGAC CATGGAAGTG
401 TTGAATTGGG AAAAATCACA GCTGATATGG TACTTGGTGG AATGAGAGGA
451 ATGACTGCTT TAGTGTGGCT AGGCTCAGCT GTTGACCCAG ATGAGGGAAT
501 TCGCTTTAGG GGCATGACAA TTCTGACTG CCAGAAAACA CTTCCAGGTG
551 CTTTTCCCTGG TGGGGAGCCT TTGCCCGAGG CTATACTGTG GCTTCTATTG
601 ACCGGAAGG TACCAAGTAA AGAGCAAGTA GATTCATTAG CTCACGAATT
651 GCGAAGTCGT GCAAAAATCC CAGAGTATGC TTACAAGGCA ATTGATGCAC
701 TGCCTGTTTC TGCTCATCCA ATGACACAAT TTAGTACTGG TGTAAATGGCC
751 CTCCAGGTGG AGAGTGAGTT TACAAAGGCA TACGAGGGTG GGATACATAA
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851 GTTTGCTGG AATTGCTGCC TATATTTATC GACGGATATA CAAGGATGGA
901 AAAATCATA CATTGGATGA TTCTTTGGAT TATGGTGCAA ACTATGCTCA
951 CATGTTAGGA TTTGATGATC CAGAAACGCT GGAGTTTATG AGGCTGTATA
1001 TTTCTATCCA TAGTGATCAT GAAGGTGGCA ACGTTAGTTC TCACACAGCT
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1251 TGTGCCTGGA TATGGACATG GAGTTTTGCG CAATACAGAC CCAAGATACA
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1751 TTTCTGGTTG TTTTGTGAGC ATTTTTTGAT TGAGGAGATT TTGGTATTTA
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1851 CAGCATAAAT TAGGTCCCAA GGGAGCATCA GAATAAAGGC ATTATGTTTT
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FIGURE 114

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1 MAFFRSVSAL SKLRSRVGQQ PSLANSVRWL QTPSSSNTDL YSEMKELVPE
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451 MPLERP KSVT LEKLEKLVGA SS

FIGURE 115

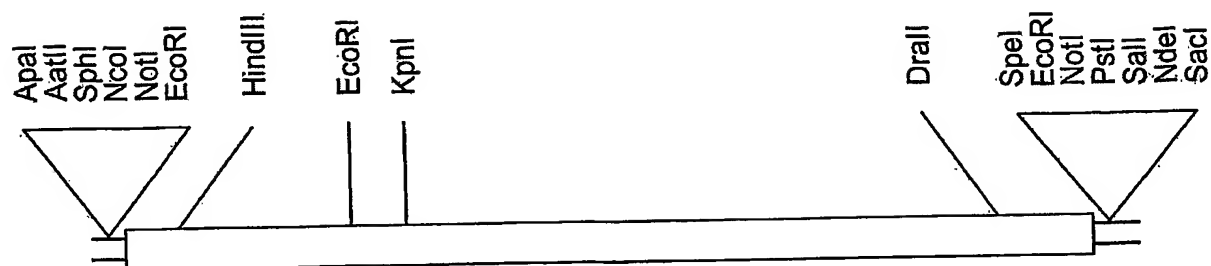
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pPZP221:TrCSa sense

FIGURE 116

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TrCSb

FIGURE 117

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1 GAATTCGATT AAGCAGTGGT AACAAACGCAG AGTACGCGGG GAGCACAACA
51 TTACGTAAAT TACATTTTCT CTTTCGCCAT TGTTCTTTCT CTTCTCAATA
101 TAAAGACCAA TTCAATTCCC AATTCTTTTG GATCCGAAAT CATTCATTCT
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251 CTCGTGTGGG TCAACAACCT AGTCTTGCTA ATTCAGTTAG ATGGCTCCAA
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701 TGCCTGTTTC TGCTCATCCA ATGACACAAT TTAGTACTGG TGTAAATGGCC
751 CTCCAGGTGG AGAGTGAGTT TACAAAGGCA TACGAGGGTG GGATACATAA
801 GTCAAGGTAT TGGGAGCCAA CTTATGAGGA TAGCTTGAAT TTAATTGCTC
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951 CATGTTAGGA TTTGATGATC CAGAAACGCT GGAGTTTATG AGGCTGTATA
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2001 AAAAAAAAAA AAAAAAAAAA AAAAAGTACT CTGCGTTGTT ACCACTGCTT
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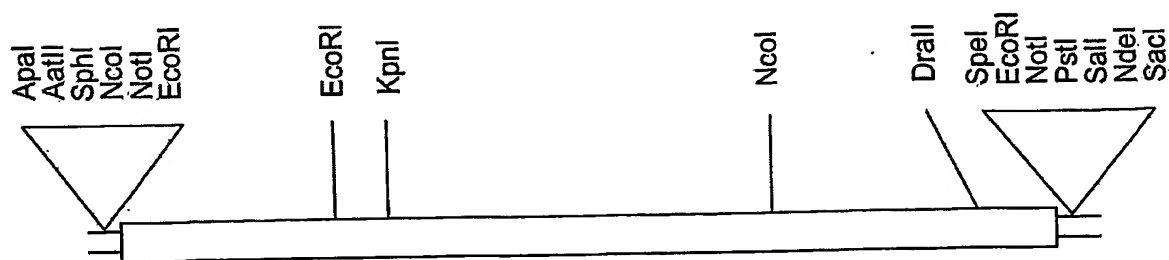
FIGURE 118

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51 YQERVKKLKK DHGSVELGKI TADMVLGGMR GMTALVWLGS AVDPDEGIRF
101 RGMTIPDCQK TLPGAFFPGGE PLPEAILWLL LTGKVPSKEQ VDSLAEHLRS
151 RAKIPEYAYK AIDALPVSAH PMTQFSTGVM ALQVESEFTK AYEGGIHKS
201 YWEPTYEDSL NLIARLPGIA AYIYRRIYKD GKIIPLDDSL DYGANAHML
251 GFDDPETLEF MRLYISIHSD HEGGNVSSHT AHLVASSLSD PYLAFAAALN
301 GLAGPLHGLA NQEVLRWIRN IVKEFGTPNI STEQLSDYIH KTLNSGQVVP
351 GYGHGVL RNT DRYTCQREF ALKHLNDPL FQLVSKIKEV VPPILTKLGK
401 VKNPWPVNDA HSGVLLNYYG LTEENYYTVL FGVARSIGVG PQLIWDRALG
451 MPLERP KSVT LEKLEKL VGA SS

FIGURE 119

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TrCSd

FIGURE 121

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```
1 GAATTCGATT AAGCAGTGGT AACAAACGCAG AGTACGCGGG GATCCGAAAT
51 CATTCATTCT ACTTTTCAAC CTGTTGTTTT GTTGATTGAT CTAAATGGCG
101 TTCTTTCGAA GCGTTTCTGC GCTTTCAAAA CTACGATCTC GTGTGGGTCA
151 ACAACCTAGT CTTGCTAATT CAGTTAGATG GCTCCAACT CCAAGCTCCA
201 GTAACACTGA TCTTTATTCT GAGATGAAGG AGCTAGTTCC AGAGTATCAG
251 GAACGTGTTA AGAAGTTGAA GAAAGACCAT GGAAGTGTTG AATTGGGAAA
301 AATCACAGCT GATATGGTAC TTGGTGGAAT GAGAGGAATG ACTGCTTTAG
351 TGTGGCTAGG CTCAGCTGTT GACCCAGATG AGGGAATTCT CTTTAGGGGC
401 ATGACAATTC CTGACTGCCA GAAAACACTT CCAGGTGCTT TTCCTGGTGG
451 GGAGCCTTTG CCCGAGGCTA TACTGTGGCT TCTATTGACC GGAAAGGTAC
501 CAAGTAAAGA GCAAGTAGAT TCATTAGCTC ACGAATTGCG AAGTCGTGCA
551 AAAATCCAG AGTATGCTTA CAAGGCAATT GATGCACTGC CTGTTTCTGC
601 TCATCCAATG ACACAATTTA GTACTGGTGT AATGGCCCTC CAGGTGGAGA
651 GTGAGTTTAC AAAGGCATAC GAGAGTGGGA TACATAAGTC AAGGTATTGG
701 GAGCCAACCT ATGAGGATAG CTTGAATTTA ATTGCTCGTT TGCCTGGAAT
751 TGCTGCCTAT ATTTATCGAC GGATATACAA GGATGGAAAA ATCATACCAT
801 TGGATGATTC TTTGGATTAT GGTGCAAAC ATGCTCACAT GTTAGGATTT
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1001 GCTGGCCAC TGCATGGTTT AGCCAATCAG GAAGTTCTAC GATGGATCAG
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1101 GCGACTACAT TCATAAAACA TTGAACAGTG GCCAGGTTGT GCCTGGATAT
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1401 GTATTGGAGT TGGCCCTCAG CTGATATGGG ACCGTGCTCT TGGAATGCCA
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1551 ACACTGCGGT TGTAAGTTGT TGGTAACTCG AAACATTTGG TGCAATTGCA
1601 ATGAGAAATA TTCGTTGCCC ACATCCCCTT CCCTTATTTT TCTGGTTGTT
1651 TTGTCAGCAT TTTTGTATTG AGAAGATTTT GGTATTTAGG AAAGGGTGGG
1701 ATTATCACCC TCACAGTTGT CTTTCCATTT TTCTACACAG CATAAATTAG
1751 GTCCCAAGGG AGCATCAGAA TAAAGGCATT ATGTTTGGG GGTAAATCCCC
1801 CTGTATTCTT TCTAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAGTACTC
1851 TCGTTGTATA CCACTGCTTA ATCACTAGTG AATTC
```

FIGURE 122

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1 MAFFRSVSAL SKLRSRVGQQ PSLANSVRWL QTPSSSNTDL YSEMKELVPE
51 YQERVKKLKK DHGSVELGKI TADMVLGGMR GMTALVWLGS AVDPDEGIRF
101 RGMTIPDCQK TLPGAFFGGE PLPEAILWLL LTGKVPSKEQ VDSLAEHLRS
151 RAKIPEYAYK AIDALPVSAH PMTQFSTGVM ALQVESEFTK AYESGIIHKS
201 YWEPTYEDSL NLIARLPGIA AYIYRRIYKD GKIIPLDDSL DYGANAHML
251 GFDDPETLEF MRLYISIHSD HEGGNVSSHT AHLVASSLSD PYLAFAAALN
301 GLAGPLHGLA NQEVLRWIRN IVTEFGTPNI STEQLSDYIH KTLNSGQVVP
351 GYGHGVLNRT DPTYTCQREF ALKHLNDPL FQLVSKIKEV VPPILTKLGK
401 VKNPWPNVDA HSGVLLNYYG LTEENYYTVL FGVARSIGVG PQLIWDRALG
451 MPLERPFSVT LEKLEKLVGA SS

FIGURE 123

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pPZP221:TrCSd sense

FIGURE 124

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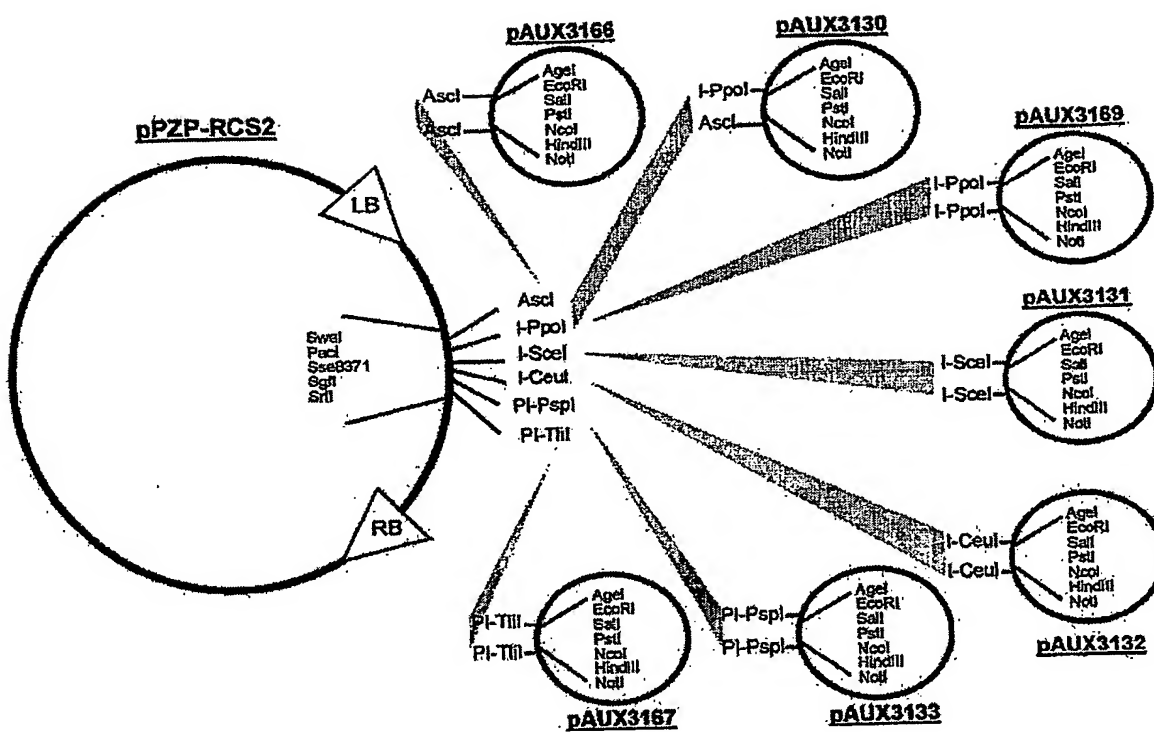


FIGURE 125

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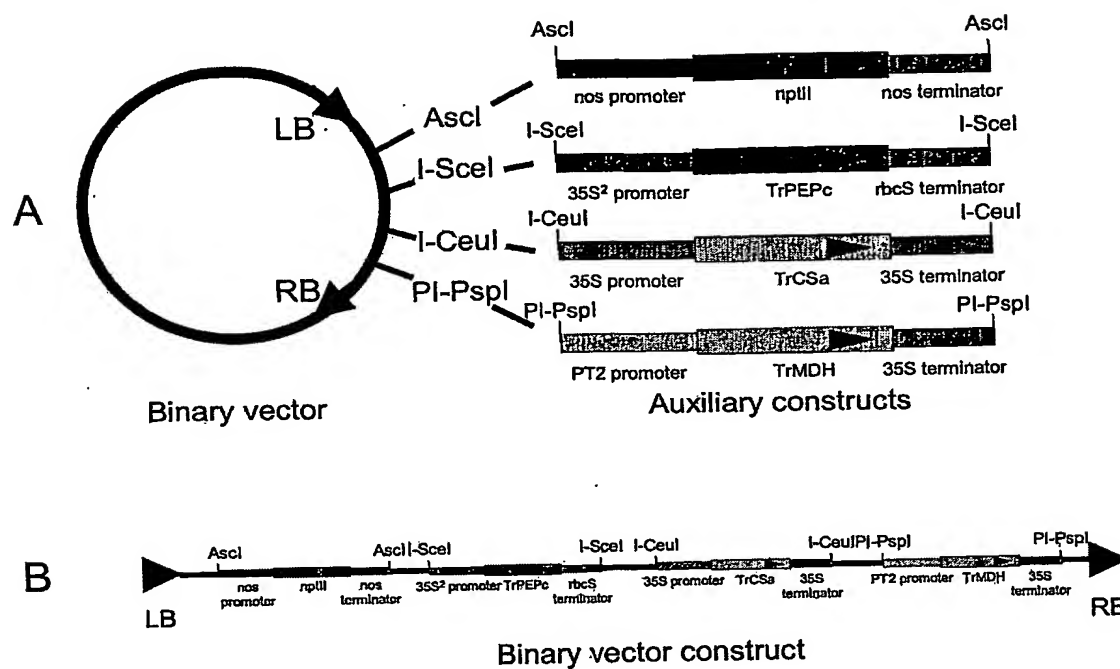
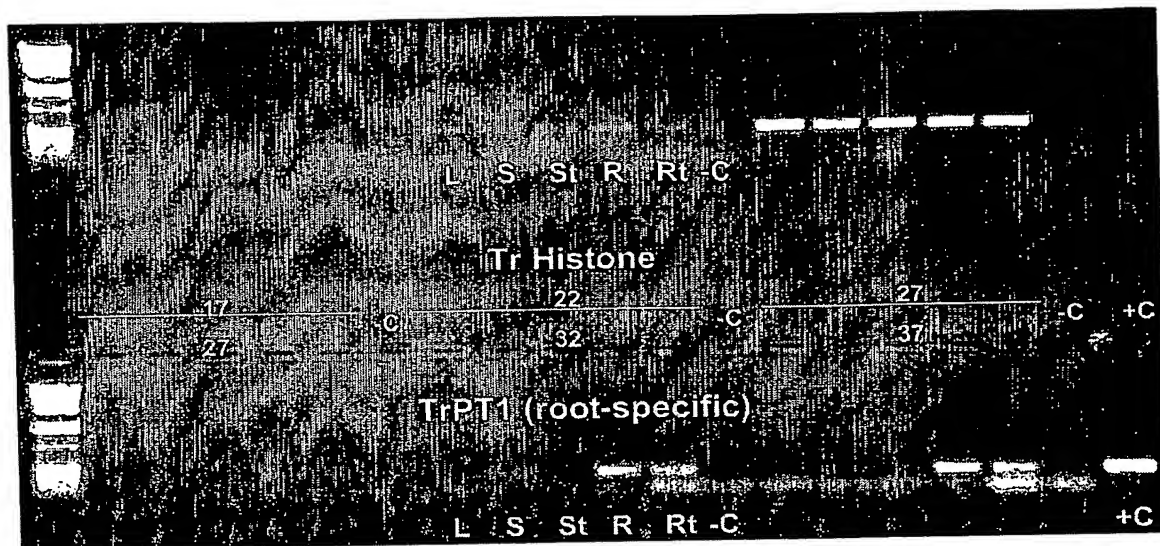


FIGURE 126

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A



B

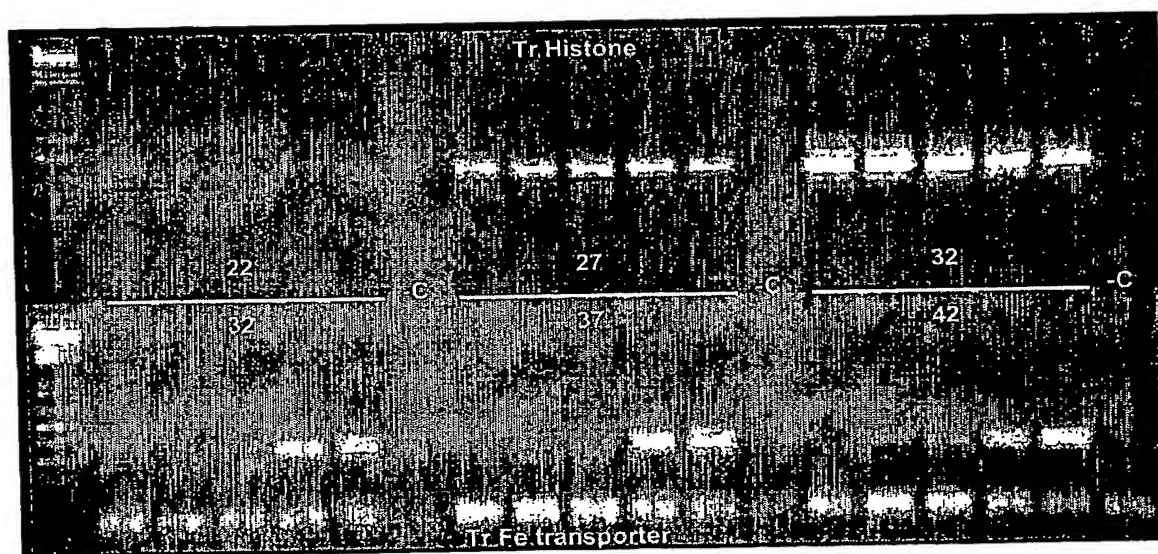
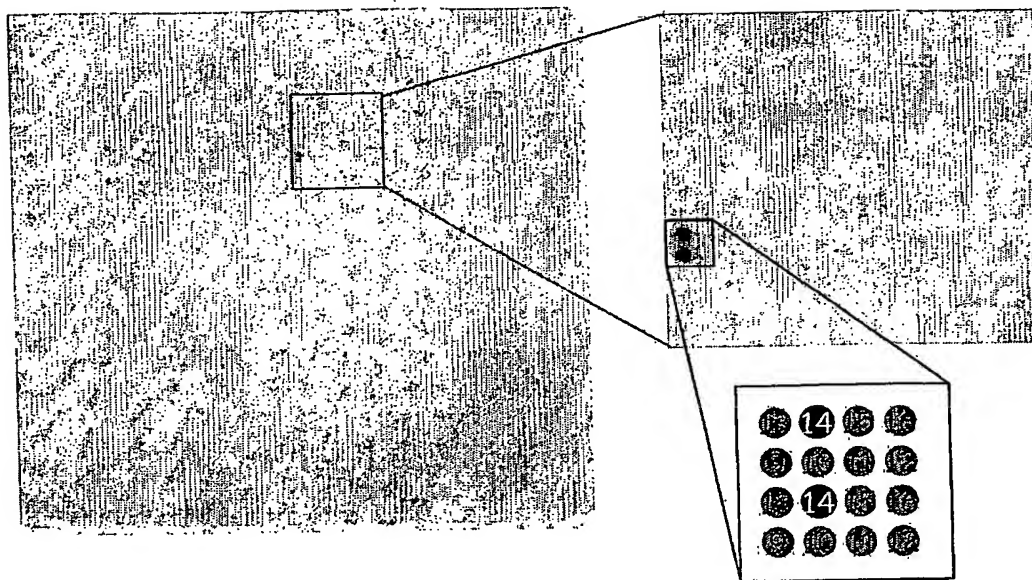


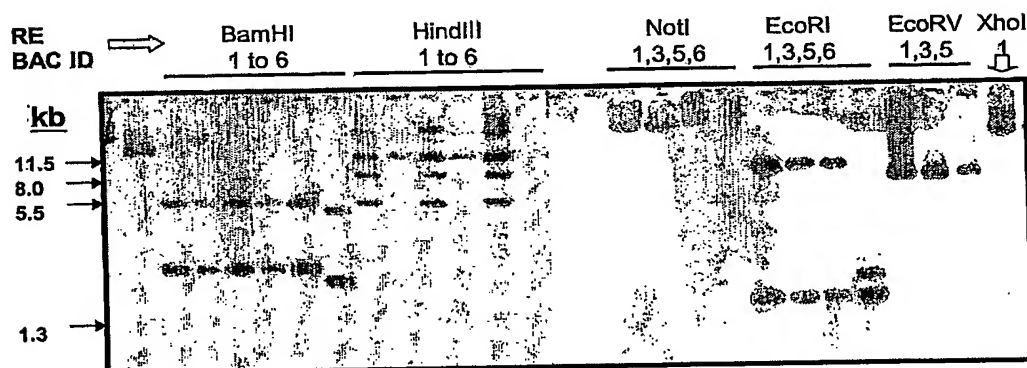
FIGURE 127

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A



B



C

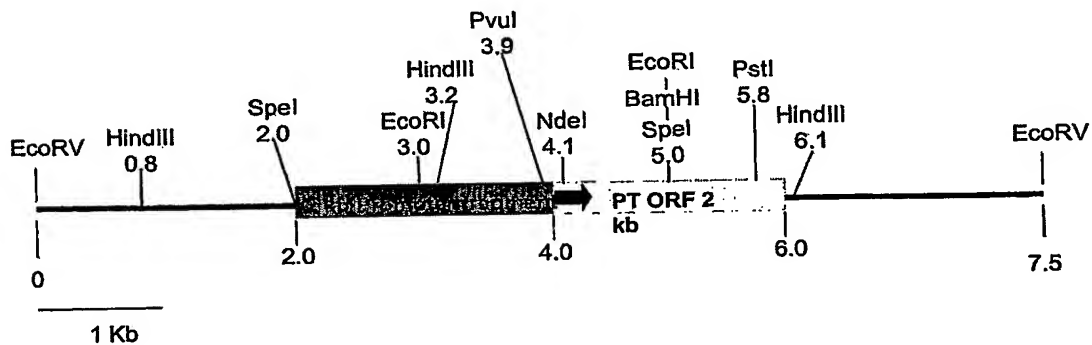


FIGURE 128

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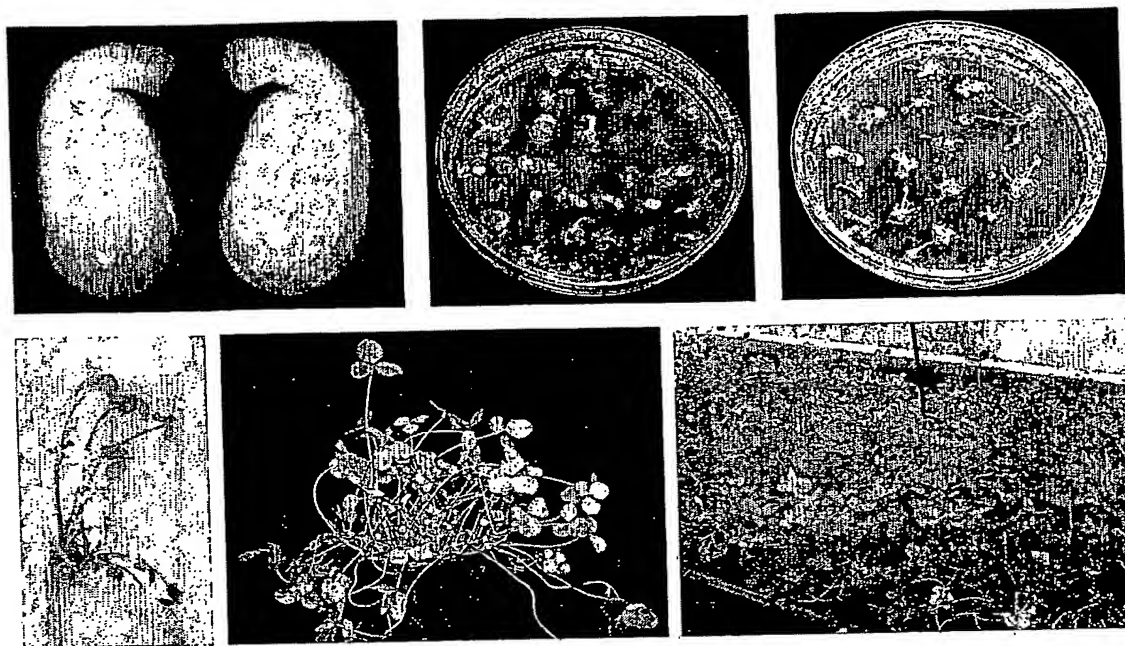
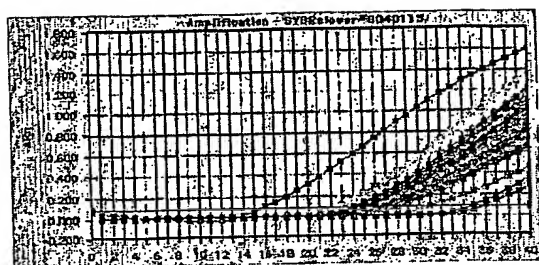
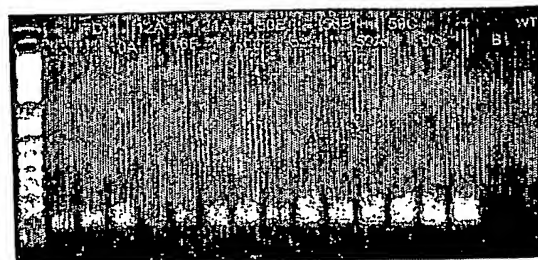


FIGURE 129

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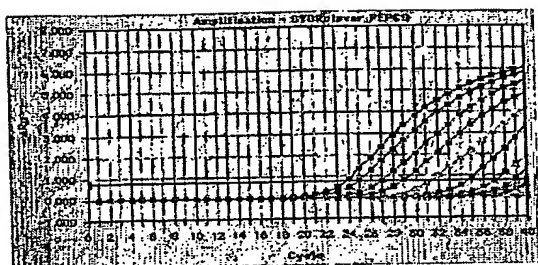
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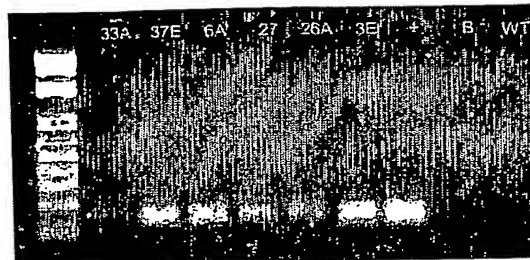
QPCR Result

FIGURE 130

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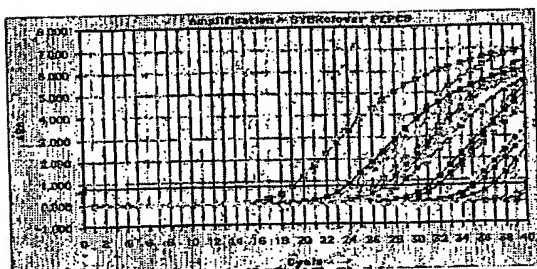
QPCR plots



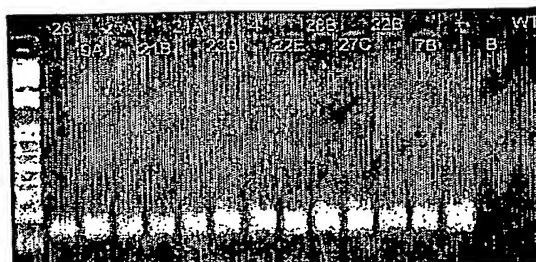
QPCR Result

FIGURE 131

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QPCR plots



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AgResearch Limited

<120> Manipulation of organic acid biosynthesis and secretion

<130> M80678527:DLT:c1

<150> 2003901796

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 Val Lys Asn Arg Lys Arg Lys Met Ser Gly Phe Gly His Arg Val Tyr
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 Lys Asn Tyr Asp Pro Arg Ala Lys Val Ile Arg Lys Leu Ala Glu Glu
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 Val Phe Thr Ile Val Gly Arg Asp Pro Leu Ile Glu Val Ala Val Ala
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 340 345 350
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<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (649)..(649)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (661)..(661)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (753)..(753)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (763)..(763)

<223> n is a, c, g, or t

<400> 3

gnnttatatt gacggggatg aggggaattct tcgctacaga ggctatccaa ttgaggaggt	60
ggctgaaagc agctcgtttg ttgaggctcg ctaccttta atgtatggga atttcccac	120
ccagagtcaa ctggcaggct gggagtttgc aatttcgcag cactctgctg ttcctcaagg	180
actcttgat ataatacaat caatgcctca tgatgccac cccatgggtg tccttgccag	240
tgcaatgagc acactttcag tcttccatcc agatgcaaac cctgctctta gaggtcaaga	300
tctatacaag tcgaagcagg ttagggataa gcaaattgta cgagttcttg ggaaggcacc	360
agtaatagca gctgcagcct atctgagatt agcaggaagg ccttttgtcc ttccttcaaa	420
taatctctct tatttcagaaa atttcttgta tatgctggac tctatgggtg acaaagatta	480
taagccaaat cccagacttg cccgggttct ggatgtcctt tttattcttc atgctgaaca	540
cgaatgaac tgctcaacag ctgctgttag gcaccttgct tcaagtgggtg tcgatgtctt	600
cactgctctt tctggtgctg ttggagctct atatggtcca ctgcatggng gcgcaaatga	660
ngcgttactt aaatgttaaa tgagattgga agtgtagaga atattccgga attcattgag	720
ggagtgaaga acaggaagcg gaaaatgtct ggntttgggc acn	763

<210> 4

<211> 682

<212> DNA

<213> Lolium perenne

<220>

<221> misc_feature

<222> (44)..(44)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (46)..(46)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (682)..(682)

<223> n is a, c, g, or t

<400> 4

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gcaggctggg agtttgcaat ttcgcacact ctgctgttcc tcangnactc ttggatataa      60
tacaatcaat gcctcatgat gcccacccca tgggtgtcct tgccagtga atgagcacac      120
tttcagtctt ccattccagat gcaaaccctg ctcttagagg tcaagatcta tacaagtcga      180
agcagggttag ggataagcaa attgtacgag ttcttgggaa ggcaccagta atagcagctg      240
cagcctatct gagattagca ggaaggccct ttgtccttcc ttcaaataat ctctcttatt      300
cagaaaattt cttgtatatg ctggactcta tgggtgacaa agattataag ccaaattcca      360
gacttgcccc gggtctggat gtccttttta ttcttcatgc tgaacacgaa atgaactgct      420
caacagctgc tgtaggcac cttgcttcaa gtggtgtcga tgtcttctact gctctttctg      480
gtgctgttgg agctctatat ggtccactgc atggtggcgc aaatgaggcg gtacttaaaa      540
tgttaaatga gattggaagt gtagagaata ttccggaatt cattgagggg gtgaagaaca      600
ggaagcggaa aatgtctggt tttgggcacc gtgtgtataa gaattatgat cctcgtgcta      660
aagtcacccg gaagtttagcg gn                                              682

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<210> 5

<211> 753

<212> DNA

<213> *Lolium perenne*

<220>

<221> misc_feature

<222> (1)..(1)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (4)..(4)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (21)..(21)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (753)..(753)

<223> n is a, c, g, or t

<400> 5

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ntntgtctga cacgaaatga nctgctcaac agctgctgtt aggcaccttg cttcaagtgg      60
tgtcgatgtc ttactgtctc tttctgggtgc tgttggagct ctatatgggc cactgcatgg      120
tggcgcaaat gaggcggtac ttaaaatgtt aaatgagatt ggaagtgtag agaattattcc      180
ggaattcatt gagggagtga agaacaggaa gcggaaaatg tctggctttg ggcaccgtgt      240
gtataagaat .tatgatcctc gtgctaaagt catccggaag ttagcggagg aggttttcac      300
gattgtggga cgggatcctc ttatcgaggt agctgttgct ttggagaagg tagcactgtc      360

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agacgagtat tttatcaaga ggaagctgta tccaaatgtg gatttttatt ctggcctaata 420
atatagggca atgggattcc ctacagagtt tttccctgtt ctgtttgcag ttcctcgcat 480
ggctgggttg ttagcacatt ggaaggagtc acttgatgac cccgacaata aaattatgag 540
gccccaacag gtatacaccg gtacttggct aaggcattac accccagtga gagaacgggt 600
gccatcaagc gacagtggagc agcttgggca gatcactaca tcaaacgcga cgaggcgctcg 660
gcgtgctggt tctgccctgt agaacagtct gcatgataca gcatacagtc cacacaataa 720
accaagctgc caagggccac ggctgcttaa atn 753

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<210> 6
<211> 745
<212> DNA
<213> Lolium perenne

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<220>
<221> misc_feature
<222> (739)..(739)
<223> n is a, c, g, or t

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```

<400> 6
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ttatcaagag gaagctgtat ccaaatgtgg atttttattc tggcctaata tatagggcaa 180
tgggattccc tgcagagttt tttccctgtt tgtttgcagt tcctcgcatg gctgggttgg 240
tagcacattg gaaggagtca cttgatgacc cgcacaataa aattatgagg cccaacagg 300
tatacaccgg tacttggcta aggcatatac cccagttaga agaacgggtg ccatcaagcg 360
acagttagca gcttgggcag atcgctacat caaacgcgac gaggcgctcg cgtgctggct 420
ctgccctgta gaacagtctg catgatacag catacagtc acacaataaa ccaagctgcc 480
aagggccacg gctgcttaaa tctgggagct gctatacttg tgttatcacg tatatgtagg 540
caataaacta ataatgccgc caggacactt cactggtggt catgtgaagt tggtagtaga 600
atgcacttgt aacgtgttgt taatttgta tcttgcaatg tacgctctat aaactgttca 660
gtgtcttgaa agtcttaatc atgtggacca agaagacata gatcaagttc ttgcatggg 720
cggcggtgtt ttctttggna aaaaa 745

```

```

<210> 7
<211> 666
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (40)..(40)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (654)..(654)

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<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (658)..(661)

<223> n is a, c, g, or t

<400> 7

ggaagttagc ggaggagggtt ttcacgattg tgggacgggn tcctcttatc gaggtagctg	60
ttgcttttga gaaggcagca ctgtcagacg agtattttat cgagaggaag ctgtatccaa	120
atgtggattt ttattctggc ctaatatata gggcaatggg attccctaca gagtttttcc	180
ctgttctgtt tgcagttcct cgcattggctg gttgggttagc acattggaag gagtcacttg	240
atgaccccca caataaaatt atgaggcccc aacagggtata caccggtact tggctaaggc	300
attacacccc agtgagagaa cgggtgccat caagcgacag tgagcagctt gggcagatcg	360
ctacatcaaa cgcgacgagg cgtcggcgtg ctggctctgc cctgtagaac agtctgcatg	420
atacagcata cagtcacac aataaaccaa gctgccagg gccacagctg cttaaactctg	480
ggagctgcta tacttgtgtt atcacgtata tataggcaat aaactaataa tgccgccagg	540
acacttcact ggtgggtcatg tgaagttggt agtagaatgc acttgtaacg tgttgtaaat	600
ttgttatcct gcaatgtacg ctctataaac tgttcagtat cttgaaagtc ttantccnnn	660
naaaaa	666

<210> 8

<211> 665

<212> DNA

<213> *Lolium perenne*

<220>

<221> misc_feature

<222> (2)..(3)

<223> n is a, c, g, or t

<400> 8

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taatatatag ggcaatggga ttccctacag agtttttccc tgttctgttt gcagttcctc	120
gcatggctgg ttggttagca cattggaagg agtcacttga tgaccccgac aataaaatta	180
tgaggcccca acagggtatac accggtactt ggctaaggca ttacacccca gtgagagaac	240
gggtgccatc aagcgacagt gagcagcttg ggcagatcgc tacatcaaac gcgacgaggc	300
gtcggcgtgc tggctctgcc ctgtagaaca gtctgcatga tacagcatac agtccacaca	360
ataaaccaag ctgccaaggg ccacggctgc ttaaactctgg gagctgctat acttgtgtta	420
tcacgtatat ataggcaata aactaataat gccgccagga cacttcactg gtgggtcatgt	480
gaagttggta gtagaatgca cttgtaacgt gttgttaatt tgttatcctg caatgtacgc	540
tctataaact gttcagtatc ttgaaagtct taatcatgtg gaccaagaag acatagatca	600
agttctttgc atgggcggcg gctgtttctt tgtgtttcct ctttttatgg gagtcttttt	660
ttacc	665

<210> 9
 <211> 597
 <212> DNA
 <213> *Lolium perenne*

<400> 9
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 aatatatagg gcaatgggat tccctacaga gtttttcctt gttctgtttg cagttcctcg 120
 catggctggt tggtttagcac attggaagga gtcacttgat gaccccgaca ataaaattat 180
 gaggcccaa caggatataca ccggtacttg gctaaggcat tacacccag tgagagaacg 240
 ggtgccatca agcgacagtg agcagcttgg gcagatcgct acatcaaacg cgacgaggcg 300
 tcggcgtgct ggctctgccc tgtagaacag tctgcatgat acagcatata gtccacacaa 360
 taaaccaagc tgccaagggc cacggctgct taaatctggg agctgctata cttgtgttat 420
 cacgtatata taggcaataa actaataatg ccgccaggac acttactggt tggatcatgtg 480
 aagttggtag tagaatgcac ttgtaacgtg ttgttaattt gttatcctgc aatgtacgct 540
 ctataaactg ttcagtatct tgaaagtctt aatcatgtgg accaatcaaa aaaaaaa 597

<210> 10
 <211> 310
 <212> DNA
 <213> *Lolium perenne*

<400> 10
 ggcagatcgc tcatcaaacg cgtcgaggcg tcggcgtgct ggctctgccc tgtagaacag 60
 tctgcatgat acagcatata gtccacacaa taaaccaagc tgccaagggc cacggctgct 120
 taaatctggg agctgctata cttgtgttat cacgtatata taggcaataa actaataatg 180
 ccgccaggac acttactggt tggatcatgtg aagttggtag tagaatgcac ttgtaacgtg 240
 ttgttaattt gttatcctgc aatgtacgct ctataaactg ttcagtatct tgaaagtctt 300
 aaaaaaaaaa 310

<210> 11
 <211> 1167
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (457)..(457)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1087)..(1087)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1106)..(1106)
 <223> n is a, c, g, or t

<400> 11
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 ttgagagtga atttgcaaag gcttatgaga aggggaattca taaatcaaag ttctggggagc 120
 ctacatatga agatagctta aatttgattg ctcggcttcc acaagtggct tcatatgttt 180
 accggagaat tttcaaggac gggaaaacta ttgcagctga taatacactg gactacgcag 240
 ctaatttttc acacatgctt ggttttgatg accccaaaat gctggagttg atgcgcctat 300
 acataacaat tcacactgat cacgaaggag ggaatgttag tgctcatgct gggcatctgg 360
 ttggaagtgc tctgtcagat ccttatcttt cttttgcagc ggactgaac ggtttagctg 420
 gaccactgca cggcttggct aatcaggaag tgttgtnatg gatcaaactt gtgatggaag 480
 aaaccgggag taacattaca actgatcagc ttaaagaata tgtttggaag aactgaaga 540
 gtggaaaggt tgttcctggc tatggtcatg gagttctacg taatacagat ccacgatact 600
 cgtgccaaag ggagtttgca ctgaagtatt taccgaaga cccacttttc caactggctt 660
 ccaagttgta cgaagttgtg cctcctatcc tcaccgagtt aggcaaggta aaaaacccat 720
 ggcctaattgt tgatgctcac agtggagttt tgctcaacca cttcggatta gttgaagcac 780
 ggtactacac tgtcttggtc ggcgtctcaa ggagcatggg aattggatct cagctcattt 840
 gggaccgtgc cctcggcctg ccacttgaaa gaccgaagag tgtcaccatg gagtggctgg 900
 aaaaccactg caagaaggct gcggcctgaa gctacaccaa tgcttcggtt taaaatcag 960
 gccgtctttg atgttaataa tgactgagca taagttaggc atggttagcc ttgttttacc 1020
 atcttcgttt tcctggccaa taactggagc aagaggctca cagacggtag aattttgtaa 1080
 ccaccgntac ttgaacaccg aatcanttaa atgtcatttg gcataaagag attaggacat 1140
 gacacataag ttttatgtgt cgctcgg 1167

<210> 12
 <211> 308
 <212> PRT
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (152)..(152)
 <223> Xaa can be any naturally occurring amino acid

<400> 12

Ser Pro Cys Xaa Cys Ser Pro Met Thr Gln Phe Thr Thr Gly Val Met
 1 5 10 15

Ala Leu Gln Val Glu Ser Glu Phe Ala Lys Ala Tyr Glu Lys Gly Ile
 20 25 30
 His Lys Ser Lys Phe Trp Glu Pro Thr Tyr Glu Asp Ser Leu Asn Leu
 35 40 45
 Ile Ala Arg Leu Pro Gln Val Ala Ser Tyr Val Tyr Arg Arg Ile Phe
 50 55 60
 Lys Asp Gly Lys Thr Ile Ala Ala Asp Asn Thr Leu Asp Tyr Ala Ala
 65 70 75 80
 Asn Phe Ser His Met Leu Gly Phe Asp Asp Pro Lys Met Leu Glu Leu
 85 90 95
 Met Arg Leu Tyr Ile Thr Ile His Thr Asp His Glu Gly Gly Asn Val
 100 105 110
 Ser Ala His Ala Gly His Leu Val Gly Ser Ala Leu Ser Asp Pro Tyr
 115 120 125
 Leu Ser Phe Ala Ala Ala Leu Asn Gly Leu Ala Gly Pro Leu His Gly
 130 135 140
 Leu Ala Asn Gln Glu Val Leu Xaa Trp Ile Lys Ser Val Met Glu Glu
 145 150 155 160
 Thr Gly Ser Asn Ile Thr Thr Asp Gln Leu Lys Glu Tyr Val Trp Lys
 165 170 175
 Thr Leu Lys Ser Gly Lys Val Val Pro Gly Tyr Gly His Gly Val Leu
 180 185 190
 Arg Asn Thr Asp Pro Arg Tyr Ser Cys Gln Arg Glu Phe Ala Leu Lys
 195 200 205
 Tyr Leu Pro Glu Asp Pro Leu Phe Gln Leu Val Ser Lys Leu Tyr Glu
 210 215 220
 Val Val Pro Pro Ile Leu Thr Glu Leu Gly Lys Val Lys Asn Pro Trp
 225 230 235 240
 Pro Asn Val Asp Ala His Ser Gly Val Leu Leu Asn His Phe Gly Leu
 245 250 255
 Val Glu Ala Arg Tyr Tyr Thr Val Leu Phe Gly Val Ser Arg Ser Met
 260 265 270
 Gly Ile Gly Ser Gln Leu Ile Trp Asp Arg Ala Leu Gly Leu Pro Leu
 275 280 285

Glu Arg Pro Lys Ser Val Thr Met Glu Trp Leu Glu Asn His Cys Lys
 290 295 300

Lys Ala Ala Ala
 305

<210> 13
 <211> 802
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (743)..(743)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (782)..(782)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (792)..(792)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (797)..(797)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (802)..(802)
 <223> n is a, c, g, or t

<400> 13
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 ttgagagtga atttgcaaag gcttatgaga aggggaattca taaatcaaag ttctgggagc 120
 ctacatatga agatagctta aatttgattg ctcggcttcc acaagtggct tcatatgttt 180
 accggagaat tttcaaggac gggaaaacta ttgcagctga taatacactg gactacgcag 240
 ctaatttttc acacatgctt ggttttgatg accccaaaat gctggagttg atgcgcctat 300
 acataacaat tcacactgat cacgaaggag ggaatgttag tgctcatgct gggcatctgg 360
 ttggaagtgc tctgtcagat ctttatcttt cttttgcagc ggcactgaac ggtttagctg 420
 gaccactgca cggttggct aatcaggaag tgttgttatg gatcaaactt gtgatggaag 480
 aaaccgggag taacattaca actgatcagc ttaaagaata tgtttggaag aactgaaga 540
 gtggaaaggt tgttcctggc tatggtcagc gagttctacg taatacagat ccacgatact 600
 cgtgccaaag ggagtttgca ctgaagtatt tacctgaaga cccacttttc caactggtct 660

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ccaagttgta tgaagttgtg cctcctatcc tctactgagtt aggcaaggta aaaaacccat      720
ggcctaattgt tgatgctcac agnggagttt tgctcaacca cttcggatta gttgaacacg      780
gnactacact gncttgntcg gn                                                    802

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<210> 14
<211> 710
<212> DNA
<213> Lolium perenne

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<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (630)..(630)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (649)..(649)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (703)..(703)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (706)..(706)
<223> n is a, c, g, or t

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<400> 14
tnatggatna atctgtgatg gaagaaccgg gagtaacatt acaactgatc agcttaaaga      60
atatgttttg aagacactga agagtggaaa gggtgttcct ggctatggtc atggagttct      120
acgtaataca gatccacgat actcgtgcca aagggagttt gcactgaagt atttaccgga      180
agaccacttt ttccaactgg tctccaagtt gtacgaagtt gtgcctccta tcctcaccga      240
gttaggcaag gtaaaaaaacc catgccctaa tgttgatgct cacagtggag ttttgctcaa      300
ccacttcgga ttagttgaag cacggtacta cactgtcttg ttcggcgtct caaggagcat      360
gggaattgga tctcagccca tttgggaccg tgccctcggc ctgccacttg aaagaccgaa      420
gagtgtcacc atggagtggc tggaaaacca ctgcaagaag gctgcggcct gaagctacac      480
caatgcttcg ttttaciaaat caggccgtct ttgatgttaa taatgactga gcataagtta      540
ggcatggtta gccttgtttt accatcttcg ttttcctggc caataactgg agcaagaggc      600
ttacagacgg tagaattttg taaccaccgn tacttgaaca ccgaatcant taaatgtcat      660
ttggcataaa gagattagga catgacacat aagttttatg tgnCGntcgg                    710

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<210> 15
 <211> 633
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (83)..(83)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (86)..(86)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (413)..(413)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (427)..(427)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (490)..(490)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (570)..(570)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (572)..(573)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (581)..(581)
 <223> n is a, c, g, or t

<400> 15
 ctgaagagtg gaaaggttgt tcctggctat ggcatggag ttctacgtaa tacagatcca 60
 cgatactcgt gccaaaggga gtnggnactg aagtatttac ccgaagaccc acttttccaa 120
 ctggtctcca agttgtacga agttgtgcct cctatcctca ccgagttagg caaggtaaaa 180
 aacccatggc ctaatgttga tgctcacagt ggagttttgc tcaaccactt cggattagtt 240
 gaagcacggt actacactgt cttgttcggc gtctcaagga gcatgggaat tggatctcag 300
 ctcatTTggg accgtgccct cggcctgcc aTTgaaagac cgaagagtgt caccatggag 360
 tggctggaaa accactgcaa gaaggctgCG gcctgaagct acaccaatgc ttngttttac 420
 aaatcangcc gtctttgatg ttaataatga ctgagcataa gttaggcatg ggtagccttg 480
 tttaccatn ttcgttttcc tggccaataa ctggagcaag aggctcacag acggtagaat 540
 tttgtaacca ccggtacttg acaccgaatn anntaaatgg natttggcat aaagagatta 600

ggacatgaca cataagtttt atgtgtcgct cgg

633

<210> 16
 <211> 349
 <212> DNA
 <213> Lolium perenne

<400> 16
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 agtgtcacca tggagtggct ggaaaaccac tgcaagaagg ctgcggcctg aagctacacc 120
 aatgcttcgt tttacaaatc aggccgtctt tgatgttaat aatgactgag cataagttag 180
 gcatgggttag ccttgtttta ccatcttcgt tttcctggcc aataactgga gcaagaggct 240
 cacagacggt agaattttgt aaccaccgtt acttgaacac cgaatcagtt aaatgtcatt 300
 tggcataaag agattaggac atgacacata agttttatgt gtcgctcga 349

<210> 17
 <211> 635
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (13)..(13)
 <223> n is a, c, g, or t

<220>
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 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
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 <222> (107)..(107)
 <223> n is a, c, g, or t

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 <222> (635)..(635)
 <223> n is a, c, g, or t

<400> 17
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 cttcttattt ccacccaac cgccaacat gtgtcctccc accgaanaaa cacctgctac 120
 caacggccat agcaacggca ccaacggcgc caatggctcc aaggaaggct tcacaggcgt 180
 cagcaccaga cagaaccctc accctacaca caagagccca tatgcacctg ttggcgactt 240

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tttgtcaaat gtcggccgct tcaagattat cgagagcaca ttaagagagg gcgagcaatt    300
cgccaacgcc tacttcgacc ttgaggctaa aatcaagatc gccagagctc tcgacaactt    360
tggtgttgac tacattgaag ttaccagccc tgctgcctct gagcagtcaa gaagggactg    420
cgaagccctc tgcaagctcg gattgaaagc caagatcctt acccacgtac gatgccacat    480
ggacgatgcc agaatcgctg tcgagactgg tgttgacggc ctcgatgtcg tcattggaac    540
ctctgcgtac ctccgcgagc acagccatgg caaggacatg acatacatca aaaacacagc    600
gctggagggtg attgagtttg tcaagagcaa gggan                                635

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<210> 18
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 <213> Lolium perenne

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 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (4)..(4)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (6)..(6)
 <223> Xaa can be any naturally occurring amino acid

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 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (36)..(36)
 <223> Xaa can be any naturally occurring amino acid

<400> 18

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Asn Pro Pro Thr Phe Leu Phe Pro Pro Gln Pro Pro Asn Met Cys Pro
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Pro Thr Glu Xaa Thr Pro Ala Thr Asn Gly His Ser Asn Gly Thr Asn
 35 40 45

Gly Ala Asn Gly Ser Lys Glu Gly Phe Thr Gly Val Thr Thr Arg Gln
 50 55 60

Asn Pro His Pro Thr His Lys Ser Pro Tyr Ala Pro Val Gly Asp Phe
 65 70 75 80

Leu Ser Asn Val Gly Arg Phe Lys Ile Ile Glu Ser Thr Leu Arg Glu
85 90 95

Gly Glu Gln Phe Ala Asn Ala Tyr Phe Asp Leu Glu Ala Lys Ile Lys
100 105 110

Ile Ala Arg Ala Leu Asp Asn Phe Gly Val Asp Tyr Ile Glu Val Thr
115 120 125

Ser Pro Ala Ala Ser Glu Gln Ser Arg Arg Asp Cys Glu Ala Leu Cys
130 135 140

Lys Leu Gly Leu Lys Ala Lys Ile Leu Thr His Val Arg Cys His Met
145 150 155 160

Asp Asp Ala Arg Ile Ala Val Glu Thr Gly Val Asp Gly Leu Asp Val
165 170 175

Val Ile Gly Thr Ser Ala Tyr Leu Arg Glu His Ser His Gly Lys Asp
180 185 190

Met Thr Tyr Ile Lys Asn Thr Ala Leu Glu Val Ile Glu Phe Val Lys
195 200 205

Ser Lys Gly
210

<210> 19
<211> 636
<212> DNA
<213> Lolium perenne

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <222> (636)..(636)
 <223> n is a, c, g, or t

<400> 19
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 caacgacctc agcgatcagg ccatcaagga ctacctgtgg tccaccctca aggctggcca 120
 agtcgttccc ggttacggac acgccgttct ccgcaagacc gacccccgct acgtctccca 180
 gcgcgagttc gcccagaagc accttcccga cgacccaatg ttcaagctcg tcagtcaggt 240
 ctacaagatc gcccctggtg ttctcaccga gcacggcaag accaagaacc cctaccccaa 300
 cgtcgacgcc cactccggtg tcctcctcca gtactacggc ctactgagc agaactacta 360
 caccgttctc ttcggtgtat cccgtgcgct cgggtgcctt ccccagctta tcattgaccg 420
 tgccgtcggg gccccattg agaggcccaa gtctttcagc actgaggctt acgccaagtt 480
 ggttggtgct aagttgtaag cgcgttactg caacgtgctc tacagccagg agaatgtgga 540
 ggaatttggt taacattcag agataccttg tcctgtgtag aattgcaatg taaggatagg 600
 gaatgggagc gttacggcgc tacatcacta catttn 636

<210> 20
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 <213> Lolium perenne

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 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (4)..(7)
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 <222> (9)..(10)
 <223> Xaa can be any naturally occurring amino acid

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 <222> (12)..(12)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (14)..(17)
 <223> Xaa can be any naturally occurring amino acid

<400> 20

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 1 5 10 15

Xaa Ala Ile Gly Asn Asp Leu Ser Asp Gln Ala Ile Lys Asp Tyr Leu
 20 25 30

Trp Ser Thr Leu Lys Ala Gly Gln Val Val Pro Gly Tyr Gly His Ala
 35 40 45

Val Leu Arg Lys Thr Asp Pro Arg Tyr Val Ser Gln Arg Glu Phe Ala
 50 55 60

Gln Lys His Leu Pro Asp Asp Pro Met Phe Lys Leu Val Ser Gln Val
 65 70 75 80

Tyr Lys Ile Ala Pro Gly Val Leu Thr Glu His Gly Lys Thr Lys Asn
 85 90 95

Pro Tyr Pro Asn Val Asp Ala His Ser Gly Val Leu Leu Gln Tyr Tyr
 100 105 110

Gly Leu Thr Glu Gln Asn Tyr Tyr Thr Val Leu Phe Gly Val Ser Arg
 115 120 125

Ala Leu Gly Val Leu Pro Gln Leu Ile Ile Asp Arg Ala Val Gly Ala
 130 135 140

Pro Ile Glu Arg Pro Lys Ser Phe Ser Thr Glu Ala Tyr Ala Lys Leu
 145 150 155 160

Val Gly Ala Lys Leu
165

<210> 21
<211> 696
<212> DNA
<213> Lolium perenne

<220>
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attgtctagt gaagacatca aggcctctcac caagaggaca caggagggtg ggacagaagt 120
tggtgaggca aaggctggaa agggatctgc aaccttgctc atggcgtatg ctggcgcagt 180
ttttggtgat gcatgcttga agggctctgaa cggagttcct gacattgttg aatgctccta 240
cgtgcaatca actatcacag aactgccatt ctttgcctcc aaggtgaggc tcgggaagaa 300
tggagtcgag gaagtgcctg gtttgggtga gctgtcggcc ttgagaagg aaggtttgga 360
aagtctcaag ggtgagctca agtcttcaat tgacaagggc atcgcgttcg ccaatgagag 420
ttaattaatt ttgcagatta tagcaaacca ggtctagtta aggggtctgt ttttgacttt 480
ttgttcagtg ctttttctgc ccatcacgtg ggcatggaag atttgagctt cacaataaaa 540
atccggcggc gtaatgccac agaacattac ttgtacaaga ggggaactagt tcgtgtcaag 600
ttttgaactg gtacattaaa cgaacaattg ctgatgcact ttgagaaaaa aaaattgggg 660
gtgantccat tggcctcaag ccaaaaaaaaa aaaaaa 696

<210> 22
<211> 140
<212> PRT
<213> Lolium perenne

<400> 22

Val Gly Cys Trp Tyr His His Ser Ala Leu Phe Ser Gln Ala Thr Pro
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Ser Thr Asn Ala Leu Ser Ser Glu Asp Ile Lys Ala Leu Thr Lys Arg
20 25 30

Thr Gln Glu Gly Gly Thr Glu Val Val Glu Ala Lys Ala Gly Lys Gly
35 40 45

Ser Ala Thr Leu Ser Met Ala Tyr Ala Gly Ala Val Phe Gly Asp Ala
50 55 60

Cys Leu Lys Gly Leu Asn Gly Val Pro Asp Ile Val Glu Cys Ser Tyr
65 70 75 80

Val Gln Ser Thr Ile Thr Glu Leu Pro Phe Phe Ala Ser Lys Val Arg
85 90 95

Leu Gly Lys Asn Gly Val Glu Glu Val Leu Gly Leu Gly Glu Leu Ser
100 105 110

Ala Phe Glu Lys Glu Gly Leu Glu Ser Leu Lys Gly Glu Leu Lys Ser
115 120 125

Ser Ile Asp Lys Gly Ile Ala Phe Ala Asn Ala Ser
130 135 140

<210> 23
<211> 650
<212> DNA
<213> Lolium perenne

<220>
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<222> (650)..(650)
<223> n is a, c, g, or t

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attgtctagt gaagacatca aggctctcac caagaggaca caggagggtg ggacagaagt 120
tggtgaggca aaggctggaa agggatctgc aaccttgtcc atggcgtatg ctggcgagtt 180
ttttggtgat gcatgcttga agggctctgaa cggagttcct gacattgttg aatgctccta 240
cgtgcaatca actatcacag aactgccatt ctttgcctcc aaggtagaggc tcgggaagaa 300
tgtagtcgag gaagtgcctt gtttgggtga gctgtcggcc ttgagaagg aaggtttgga 360
aagtctcaag ggtgagctca agtcttcaat tgacaagggc atcgcgttcg ccaatgagag 420
ttaattaatt ttgcagatta tagcaaacca ggtctagtta aggggtctgt tgtttttgtt 480
cagtgccttt tctgcccatt acgtgggcat ggaagatttg agcttcacaa taaaaatccg 540
gcggcgtaat gccacagaac attacttgta caagagggaa ctagttcgtg tcaagttttg 600
aactggtaca ttaaacgaac aattgctgat gcactttgag aaaaaaaaaan 650

<210> 24
<211> 649
<212> DNA
<213> Lolium perenne

<400> 24
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ttgtctagt aagacatcaa ggctctcacc aagaggacac aggagggtg gacagaagtt 120
gttgaggcaa aggctggaaa gggatctgca accttgtcca tggcgtatgc tggcgagtt 180
tttggtgat catgcttga gggctctgaa ggagttcctg acattgttga atgctcctac 240
gtgcaatcaa ctatcacaga actgccattc tttgcctcca aggtgaggct cgggaagaat 300
ggagtcgagg aagtgccttg tttgggtgag ctgtcggcct ttgagaagga aggtttggaa 360

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agtctcaagg gtgagctcaa gtcttcaatt gacaagggca tcgcgttcgc caatgcgagt 420
taattaattt tgcagattat agcaaaccag gtctagttaa ggggtctggt gtttttgttc 480
agtgcctttt ctgcccata cgtgggcatg gaagatttga gcttcacaat aaaaatccgg 540
cggcgtaatg ccacagaaca ttacttgtag aagaggggaa tagttcgtgt caagttttga 600
actggtacat taaacgaaca attgctgatg cactttgaga aaaaaaaaaa 649

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<210> 25
<211> 649
<212> DNA
<213> Lolium perenne

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<400> 25
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gttgaggcaa aggctggaaa gggatctgca accttgcca tggcgtagtc tggcgtagtt 180
tttggtgatg catgcttgaa gggctcgaac ggagttcctg acattgttga atgctcctac 240
gtgcaatcaa ctatcacaga actgccattc ttgacctcca aggtgaggct cgggaagaat 300
ggagtcgagg aagtgcctgg tttgggtgag ctgtcggcct ttgagaagga aggtttggaa 360
agtctcaagg gtgagctcaa gtcttcaatt gacaagggca tcgcgttcgc caatgcgagt 420
taattaattt tgcagattat agcaaaccag gtctagttaa ggggtctggt gtttttgttc 480
agtgcctttt ctgcccata cgtgggcatg gaagatttga gcttcacaat aaaaatccgg 540
cggcgtaatg ccacagaaca ttacttgtag aagaggggaa tagttcgtgt caagttttga 600
actggtacat taaacgaaca attgctgatg cactttgaga aaaaaaaaaa 649

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<210> 26
<211> 544
<212> DNA
<213> Lolium perenne

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (522)..(522)
 <223> n is a, c, g, or t

<220>
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 <222> (526)..(526)
 <223> n is a, c, g, or t

<220>
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 <222> (529)..(530)
 <223> n is a, c, g, or t

<220>
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 <222> (534)..(534)
 <223> n is a, c, g, or t

<220>
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 <222> (537)..(537)
 <223> n is a, c, g, or t

<220>
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 <222> (543)..(544)
 <223> n is a, c, g, or t

<400> 26
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 tctagtgaag acatcaaggc tctcaccaag aggacacagg aggggtgggac agaagttggt 120
 gaggcaaagg ctggaaaggg atctgcaacc ttgtccatgg cgtatgctgg cgcagttttt 180
 ggtgatgcat gcttgaaggg tctgaacgga gttcctgaca ttgttgaatg ctcctacgtg 240
 caatcaacta tcacagaact gccattcttt gcctccaagg tgaggctcgg gaagaatgga 300
 gtcgaggaag tgcttggttt gggtgagctg tcggcctttg agaaggaagg tttggaaagt 360
 ctcaagggtg agctcaagtc ttcaattgac aagggcacgc cgttcgccaa tgcgagttaa 420
 ttaattttgc agattatagc aaaccaggtc tagttaaggg gtctgttgnt tttgntcann 480
 gctttttctg cccatcacgt gngcatgnaa gatttgagct tnacantann tatnccngcg 540
 cgnn 544

<210> 27
 <211> 589
 <212> DNA
 <213> Lolium perenne

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 <223> n is a, c, g, or t

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<221> misc_feature
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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (494)..(494)
 <223> n is a, c, g, or t

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 <222> (509)..(509)
 <223> n is a, c, g, or t

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 <222> (541)..(541)
 <223> n is a, c, g, or t

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 <222> (562)..(562)
 <223> n is a, c, g, or t

<220>
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 <222> (571)..(571)
 <223> n is a, c, g, or t

<220>
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 <222> (574)..(574)
 <223> n is a, c, g, or t

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 <222> (580)..(580)
 <223> n is a, c, g, or t

<400> 27
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 gcgtatgctg gcgcagtttt tggtgatgca tgcttgaagg gtctgaacgg agttcctgac 120
 attgttgaat gtcctatgt gcaatcaact atcacagaac tgccattctt tgcctccaag 180
 gtgaggctcg ggaagaatgg agtcgaggaa gtgcttggtt tgggtgagct gtcggccttt 240
 ganaaggaag gtttggaag tctcaagggt gagctcaagt cttcaattga caagggcatc 300
 gcgttcgcca atgcgagttg attaaatttg cagattatag caatccaggt ctagttgagg 360
 ggtctgtttt tgactttttg ttcagngctt tttctgcca tcacgtgggc atggaagatt 420
 tgagcttcac aataaaaatc cggcggcgta atgccacana acattacttg gacaagaggg 480
 aactagttcg ggtnaagttt tgaactggna cattaaaca ccaattgttg tgcccctttg 540
 ngaaccgccc tttgggggtg antccattgg nctnaagccn aaaaaaaaa 589

<210> 28
 <211> 413

<212> DNA
 <213> *Lolium perenne*

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 <222> (5)..(5)
 <223> n is a, c, g, or t

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 <222> (12)..(13)
 <223> n is a, c, g, or t

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 <222> (406)..(406)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (409)..(409)
 <223> n is a, c, g, or t

<400> 28
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 gagaaggaag gtttggaag tctcaagggg gagctcaagt cttcaattga caagggcatc 120
 gcgttcgcca atgcgagttg attaaatttg cagattatag caatccaggt ctagttgagg 180
 ggtctgtttt tgactttttg ttcagtgcctt tttctgccca tcacgtgggc atggaagatt 240
 tgagcttcac aataaaaatc cggcggcgta atgccacaga acattacttg tacaagaggg 300
 aactagttcg tgtcaagttt tgaactggta cattaacga acaattgttg atgcactttg 360
 tgaaccgtcc tttggtgttg attccattgt cttcaagtta acgaanaana aaa 413

<210> 29
 <211> 345
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (79)..(79)
 <223> n is a, c, g, or t

<400> 29
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 gaaagtctca aggggtgagnt caagtcttca attgacaagg gcatcgcggt cgccaatgcg 120
 agttgattaa atttgcagat tatagcaatc caggtctagt tgaggggtct gtttttgact 180
 ttttgttcag tgctttttct gcccatcacg tgggcatgga agatttgagc ttcacaataa 240
 aaatccggcg gcgtaatgcc acagaacatt acttgtaaa gaggggaacta gttcgtgtca 300
 agttttgaac tggtacatta aacgaacaat tgttgaaaaa aaaaa 345

<210> 30
 <211> 807
 <212> DNA
 <213> *Lolium perenne*

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 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (49)..(49)
 <223> n is a, c, g, or t

<220>
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 <222> (503)..(503)
 <223> n is a, c, g, or t

<220>
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 <222> (506)..(506)
 <223> n is a, c, g, or t

<220>
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 <222> (656)..(656)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (678)..(678)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (807)..(807)
 <223> n is a, c, g, or t

<400> 30
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 taaaactttc tacgctggga aggcaaacgt gccagtcact ggggtgaatg ttcctgttgt 120
 tgggtggccat gctggtgtta ctatcctgcc acagttctca caggctactc ctgcaagtaa 180
 tgcattgtcc catgaggacc ttaaggccct caccaagagg acacaagatg gtgggacgga 240
 agttgttgaa gcaaaggctg gaaagggctc agcaacattg tcaatggcat atgctggtgc 300
 agtatttgga gatgcatgct tgaaggggct caatggagtt cctgacattg tagagtgtc 360
 ctttgtgcaa tcaaccgtaa cagagctgcc attctttgcc tccaaggtaa ggctcggcaa 420
 gaacggagtg gaggaagtga ttgggctggg cgagctgtct gccttcgaga aggagggctc 480
 ggagagcctc aagggcgagc tgntgncctc catcgagaag ggtatcaagt tcgcgagga 540
 gagctagtca acctgctcag attctaacac tccgcacatg aactcggtgg gatctgatga 600
 atttttggta cgactccttt cactgcccc ttctcctggg gacattgagg cgtcngctc 660
 cacaataaaa tggcgtgnct tgttgccata ctgaactgaa cttgtaatac cagaaagagt 720

gaaaccctgt gccttatgta ccacagtacg gtgaacccga aaatcatgaa ggtagcagaa 780
gattctgtgg aagctttttt cttttan 807

<210> 31
<211> 181
<212> PRT
<213> Lolium perenne

<220>
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<222> (2)..(2)
<223> Xaa can be any naturally occurring amino acid

<220>
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<222> (16)..(16)
<223> Xaa can be any naturally occurring amino acid

<220>
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<222> (168)..(169)
<223> Xaa can be any naturally occurring amino acid

<400> 31

Leu Xaa Leu Leu Pro Ser Glu Lys Ala Val Arg Cys His His Pro Xaa
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Val Val Arg Ala Lys Thr Phe Tyr Ala Gly Lys Ala Asn Val Pro Val
20 25 30

Thr Gly Val Asn Val Pro Val Val Gly Gly His Ala Gly Val Thr Ile
35 40 45

Leu Pro Gln Phe Ser Gln Ala Thr Pro Ala Ser Asn Ala Leu Ser His
50 55 60

Glu Asp Leu Lys Ala Leu Thr Lys Arg Thr Gln Asp Gly Gly Thr Glu
65 70 75 80

Val Val Glu Ala Lys Ala Gly Lys Gly Ser Ala Thr Leu Ser Met Ala
85 90 95

Tyr Ala Gly Ala Val Phe Gly Asp Ala Cys Leu Lys Gly Leu Asn Gly
100 105 110

Val Pro Asp Ile Val Glu Cys Ser Phe Val Gln Ser Thr Val Thr Glu
115 120 125

Leu Pro Phe Phe Ala Ser Lys Val Arg Leu Gly Lys Asn Gly Val Glu
130 135 140

Glu Val Ile Gly Leu Gly Glu Leu Ser Ala Phe Glu Lys Glu Gly Leu
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Glu Ser Leu Lys Gly Glu Leu Xaa Xaa Ser Ile Glu Lys Gly Ile Lys
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Phe Ala Gln Glu Ser
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 aacggagtgg aggaagtgat tgggctgggc gagctgtctg ctttcgagaa ggagggtctg 480
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 tttttggtac gactcctttc tctgcccctt ttctgtgggg acattgaggc gttgngcttc 660
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 ttctactgcc cctttctcct ggggacattg aggcgtcgtg ctccacaata aaatggcgtg 660
 tcttggtgcc atactgaact gaacttgtaa taccagaaag agtgaaaccc tgtgccttat 720
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 gttaatcctc cctgctcatt caccatgagg aaattagtat ctcaccttca cagcatacag 180
 aatggtggga cagaagtngt cgaggcgaaa gctggagcag gatcggnnac tntttctatg 240
 gcgnatgcgg cagctaaatt tgcagatgct tgctngagag gattgcatgg tgatgctggg 300
 atagnggant gctcttatgt ggattctcag gtgacgganc tntctttntt tgcattccaaa 360
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<400> 35

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 20 25 30

Xaa Ile Leu Pro Leu Leu Ser Gln Val Asn Pro Pro Cys Ser Phe Thr
 35 40 45

Met Arg Lys Leu Val Ser His Leu His Ser Ile Gln Asn Gly Gly Thr
 50 55 60

Glu Xaa Val Glu Ala Lys Ala Gly Ala Gly Ser Xaa Thr Xaa Ser Met
 65 70 75 80

Ala Xaa Ala Ala Ala Lys Phe Ala Asp Ala Cys Xaa Arg Gly Leu His
 85 90 95

Gly Asp Ala Gly Ile Xaa Xaa Cys Ser Tyr Val Asp Ser Gln Val Thr
 100 105 110

Xaa Xaa Ser Xaa Phe Ala Ser Lys Val Arg Leu Gly Cys Ser Gly Val
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Xaa Glu Ile Leu Pro Leu Gly Pro Leu Asn Glu
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<210> 36
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gccgcgcagc tcctccgccg ccgcagctac tcgtccgcgt ccggccagcc ggagcggaag 180
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aaccgcctcg tctcctccct ctccctctac gacatcgccg ccacccccgg cgtcgccgcc 300
gacgtctccc acatcaactc cccggccctg gtgaaggggt tcatgggcga cgatcagctc 360
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<400> 37

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Phe Arg Leu His Arg Ser Arg Ser His Thr Pro Pro Gln Pro Ala Thr
 20 25 30

Met Arg Pro Ser Ala Met Arg Ser Ala Ala Gln Leu Leu Arg Arg Arg
 35 40 45

Ser Tyr Ser Ser Ala Ser Gly Gln Pro Glu Arg Lys Val Ala Ile Leu
 50 55 60

Gly Ala Ala Gly Gly Ile Gly Gln Pro Leu Ala Leu Leu Met Lys Leu
 65 70 75 80

Asn Pro Leu Val Ser Ser Leu Ser Leu Tyr Asp Ile Ala Ala Thr Pro
 85 90 95

Gly Val Ala Ala Asp Val Ser His Ile Asn Ser Pro Ala Leu Val Lys
 100 105 110

Gly Phe Met Gly Asp Asp Gln Leu Ala Glu Ala Leu Glu Gly Ala Asp
 115 120 125
 Leu Val Ile Ile Pro Ala Gly Val Pro Arg Lys Pro Gly Met Thr Arg
 130 135 140
 Asp Asp Leu Phe Asn Ile Asn Ala Gly Ile Val Lys Asn Leu Cys Thr
 145 150 155 160
 Ala Ile Ala Lys Tyr Cys Pro Asn Ala Leu Ile Asn Met Ile Ser Asn
 165 170 175
 Pro Val Asn Ser Thr Val Pro Ile Ala Ala Glu Val Phe Lys Lys Ala
 180 185 190
 Gly Thr Tyr Asp Glu Lys Lys Leu Phe Gly Val Thr Thr Leu Asp Val
 195 200 205
 Val Arg Ala Arg Thr Phe Tyr Ala Gly Lys Ala Asn Val Pro Val Thr
 210 215 220
 Gly Val Asn Val Pro Val Val Gly Gly His Ala Gly Ile Thr Ile Leu
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Asp Xaa

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 cactcctttc gcaggttagt cctccctgct cgttcacccc tgaggaaatt agttatctca 240
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 35 40 45

Val Val Gly Gly His Ala Gly Val Thr Ile Leu Pro Leu Leu Ser Gln
 50 55 60

Val Ser Pro Pro Cys Ser Phe Thr Pro Glu Glu Ile Ser Tyr Leu Thr
 65 70 75 80

Ser Arg Ile Gln Asn Gly Gly Thr Glu Val Val Glu Ala Lys Ala Gly
 85 90 95

Ala Gly Ser Ala Thr Leu Ser Met Ala Tyr Ala Ala Ala Lys Phe Ala
 100 105 110

Asp Ala Cys Leu Arg Gly Leu His Gly Asp Ala Gly Ile Val Glu Cys
 115 120 125

Ser Tyr Val Asp Ser Gln Val Thr Gly Thr Ala Phe Phe Ala Ser Lys
 130 135 140

Val Arg Leu Gly Arg Ser Gly Val Glu Glu Ile Leu Gln Leu Gly Ser
 145 150 155 160

Thr Glu Pro Gly Phe Glu Arg Xaa Gly Leu Glu Xaa Gly Glu Xaa Xaa
 165 170 175

Ser Tyr Pro Glu Ser Leu Pro Glu Arg Xaa Cys His Phe Xaa Gln Gln
 180 185 190

Ser Glu Leu His Ala Ile Ile Phe Val Gly Cys Ala Ser Pro Lys Phe
 195 200 205

Gln His Thr Val Xaa Ile Gly Ile Xaa Ile Leu Leu Val Trp Gly Leu
 210 215 220

Leu Xaa Xaa Cys Lys Gln Ala Thr Xaa Trp Val Gly Gly Val Arg Xaa
 225 230 235 240

Glu Lys Leu Leu Thr Phe Phe Phe Thr Val Xaa Asn Lys Xaa Xaa Glu
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Lys Pro Glu Xaa Tyr Met Ile Xaa Glu Xaa Ser Xaa Xaa Lys Lys

260

265

270

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 atacagaatg gcggtaccga agttgttgag gcaaaggctg gagcaggctc tgcaactttg 420

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ggtgtggcgt tcatgaacaa gtgagatcat atgaatggat ggataacccg caacctatac    720
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<223> Xaa can be any naturally occurring amino acid

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<220>
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<223> Xaa can be any naturally occurring amino acid

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<220>
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<223> Xaa can be any naturally occurring amino acid

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<220>
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<223> Xaa can be any naturally occurring amino acid

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<220>
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<222> (204)..(204)
<223> Xaa can be any naturally occurring amino acid

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<400> 41

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Met Leu Gly Ile Val Arg Ser Ile Cys Glu Gly Val Ala Lys Ser Cys
1           5           10           15

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Pro Asn Ala Ile Val Asn Leu Ile Ser Asn Pro Val Asn Ser Thr Val
20           25           30

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Pro Ile Ala Ala Glu Xaa Phe Lys Arg Ala Gly Thr Tyr Cys Pro Lys

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35

40

45

Arg Leu Leu Gly Val Thr Thr Leu Asp Val Ala Arg Ala Asn Thr Phe
 50 55 60

Val Ala Glu Val Leu Gly Xaa Asp Pro Arg Glu Xaa Ser Val Pro Xaa
 65 70 75 80

Val Gly Gly His Ala Gly Ile Thr Ile Leu Pro Leu Leu Xaa Gln Val
 85 90 95

Ser Pro Pro Cys Ser Phe Thr Pro Asp Glu Ile Ser Tyr Leu Thr Asn
 100 105 110

Arg Ile Gln Asn Gly Gly Thr Glu Val Val Glu Ala Lys Ala Gly Ala
 115 120 125

Gly Ser Ala Thr Leu Ser Met Ala Phe Ala Ala Ala Lys Phe Ala Asp
 130 135 140

Ala Cys Leu Arg Gly Met Arg Gly Asp Ala Gly Ile Val Glu Cys Xaa
 145 150 155 160

Tyr Val Ala Ser Glu Val Thr Glu Leu Pro Phe Phe Ala Thr Lys Val
 165 170 175

Arg Leu Gly Arg Gly Gly Ala Glu Glu Ile Leu Pro Leu Gly Pro Leu
 180 185 190

Asn Asp Phe Glu Arg Ala Gly Leu Glu Lys Ala Xaa Lys Glu Leu Ser
 195 200 205

Glu Ser Ile Gln Lys Gly Val Ala Phe Met Asn Lys
 210 215 220

<210> 42
 <211> 798
 <212> DNA
 <213> Lolium perenne

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 <223> n is a, c, g, or t

<220>
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 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
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 <222> (13)..(13)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

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 <222> (134)..(134)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (301)..(301)
 <223> n is a, c, g, or t

<220>
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 <222> (633)..(633)
 <223> n is a, c, g, or t

<400> 42
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 aagagctgtc ctaatgcaat agtgaatttg atcagcaacc ctgtgaactc aactgtcccc 120
 attgcgggcan aagntttcaa gagggctgga acttactgcc ccaaactgtct ccttggagtg 180
 acaactcttg atgtagcgag ggctaacacc tttgtggctg aagtgcttgn agntgacct 240
 agagaagnca gtgttccggn tgttggcggg catgcnngga tcactatatt gcccctcctg 300
 ncccagggtca gccccccgtg ctcatcact ccagatgaaa tcagctatct gactaaccgc 360
 atacagaatg gcggtaccga agttgttgag gcaaaggctg gagcaggctc tgcaactttg 420
 tcaatggctt ttgctgctgc aaaattcgcc gatgcatgct tgcgtggaat gcgtgggtgat 480
 gctggcattg tggaatgttc atacgttgca tctgaggtga cagagctgcc gttctttgca 540
 acaaaaagtga ggtaggtcg tggcggagct gaggagatcc tccctcttgg gccactgaat 600
 gactttgaga gagctggcct ggagaaggcg aanaaggagc tcagcgagag catccagaag 660

gggtgtggcgt tcatgaacaa gtgagatcat atgaatggat ggataccccg caacctatac 720
 atagatgatg caaagactaa agaaagagtg tgatatagtg ctcctatata cctgtaaaat 780
 ctctcctgcc tgtaagaa 798

<210> 43
 <211> 497
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (484)..(484)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (497)..(497)
 <223> n is a, c, g, or t

<400> 43
 ggatgattta ttcaacaaaa atgctgggat tgtccgatca atctgtgagg gcgttgccaa 60
 gagctgtcct aatgcaatag tgaatttgat cagcaaccct gtgaactcaa ctgtcccat 120
 tgcggcagaa gttttcaaga gggctggaac ttactgcccc aaacgtctcc ttggagtgc 180
 aactcttgat gtagcgaggg ctaacacctt tgtggctgaa gtgcttgagg ttgacctag 240
 agaagtcagt gttccggttg ttggcgggca tgcagggatc actatattgc ccctcctgtc 300
 ccaggtcagc cccccgtgct cattcactcc agatgaaatc agctatttga ctaaccgcat 360
 acagaatggc ggtaccgaag ttgttgaggc aaaggctgga gcaggctctg caactttgtc 420
 aatggctttt gctgctgcaa aattcgccga tgcattgctg cgtggaatgc gtggtgatgc 480
 tggnattgtg gaatgtn 497

<210> 44
 <211> 667
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (643)..(643)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (658)..(658)
 <223> n is a, c, g, or t

<400> 44
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 caaccgtcac tatggtcaag gctgtcgtcg cagggtgctgc tgggtggtatc ggccagcccc 120
 tctctcttct actcaagacg agccccctca tcgatgagct tgccctctac gatgttgctca 180
 acactcccgg tgttgccgct gatctttccc acatctcatc ccgcgctcaa atcgccggct 240

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acctcccca g gatgatggc gcaaaggctg cattcaaaga tgccgacatt atcgatcatcc 300
ccgccggcat tcctcgcaag cctggcatga cccgtgatga cctcttcaac atcaacgccg 360
gaattgtcaa ggggtctgatt gaggttgccg ccgaagttgc cccaaggcc ttcatctctgg 420
tcattctcaa ccctgtcaac tctaccgtcc ctatctctgc cgaggctctc aaggccaagg 480
gcgtcttcaa ccctcagcgt cttttcggtg tcaccaccct cgacatcgtc cgtgccgaga 540
ctttcgctgc cagcatcacc ggcgagaagc agccccagaa cttgaccgtc cccgtcattg 600
gcggccactc cggcgagacc atcggtccgc ttttcagcaa ggntcagccc tctgcttnca 660
ttcccg 667

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<210> 45
<211> 221
<212> PRT
<213> Lolium perenne

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<220>
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<222> (214)..(214)
<223> Xaa can be any naturally occurring amino acid

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<220>
<221> misc_feature
<222> (219)..(219)
<223> Xaa can be any naturally occurring amino acid

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<400> 45

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Ile Ala Arg Ser Cys Ser Leu Gln His His Pro His Ala Ser Pro Thr
1          5          10          15

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Gln Pro Leu Pro Thr Val Thr Met Val Lys Ala Val Val Ala Gly Ala
20          25          30

```

```

Ala Gly Gly Ile Gly Gln Pro Leu Ser Leu Leu Lys Thr Ser Pro
35          40          45

```

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Leu Ile Asp Glu Leu Ala Leu Tyr Asp Val Val Asn Thr Pro Gly Val
50          55          60

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Ala Ala Asp Leu Ser His Ile Ser Ser Arg Ala Gln Ile Ala Gly Tyr
65          70          75          80

```

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Leu Pro Lys Asp Asp Gly Ala Lys Ala Ala Phe Lys Asp Ala Asp Ile
85          90          95

```

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Ile Val Ile Pro Ala Gly Ile Pro Arg Lys Pro Gly Met Thr Arg Asp
100          105          110

```

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Asp Leu Phe Asn Ile Asn Ala Gly Ile Val Lys Gly Leu Ile Glu Val
115          120          125

```

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Ala Ala Glu Val Ala Pro Lys Ala Phe Ile Leu Val Ile Ser Asn Pro

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130

135

140

Val Asn Ser Thr Val Pro Ile Ser Ala Glu Val Leu Lys Ala Lys Gly
145 150 155 160

Val Phe Asn Pro Gln Arg Leu Phe Gly Val Thr Thr Leu Asp Ile Val
165 170 175

Arg Ala Glu Thr Phe Val Ala Ser Ile Thr Gly Glu Lys Gln Pro Gln
180 185 190

Asn Leu Thr Val Pro Val Ile Gly Gly His Ser Gly Glu Thr Ile Val
195 200 205

Pro Leu Phe Ser Lys Xaa Gln Pro Ser Ala Xaa Ile Pro
210 215 220

<210> 46
<211> 1484
<212> DNA
<213> *Lolium perenne*

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

<400> 46
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tgctgctcgcc tcctcccgaa cactctctcc catccccgaa ctccagaacc ggctccaatg 120
gcggcgaagg aaccgatgcg cgtgctcgtc accggcgccg caggacaaat tggatatgct 180
cttggtccga tgattgctag gggaattatg cttgggtgagg accagcctgt tattctgcat 240
atgctggata ttccaccagc tgctgaagct cttaatggtg ttaagatgga gttgggtgat 300
gccgcatttc cacttctcaa gggagttggt gcaacaactg atgttggtga ggcttgact 360
ggtgtgaatg ttgcggttat ggttggtgga ttccccagga aggagggaat ggaaaggaag 420
gatgttatgt ctaagaatgt ttcaatctac aaatctcaag catctgccct tgaagcccat 480
gcagccccga attgcaagggt tctggttggt gccaatccag caaacaccaa tgctcttattc 540
ttaaaggagt ttgctccatc tattcctgag aagaacatca gttgtttgac ccgcctagac 600
cataacaggg cacttggtca gatctctgag agacttgatg tccaagttag tgatgtgaag 660
aatgttatca tctggggcaa tcaactctcc agtcagtacc ctgatgtgaa ccacgccacc 720
gtgaagactt ccagtggcga gaagcctggt cgcgaacttg ttaaagacga tgaatggcta 780
aatgcagggt tcattgccac tgtccagcag cgtggtgctg caatcatcaa agcgaggaag 840
ctctccagtg ctctctctgc tgccagctct gcttggtgacc acatccgtga ttgggttctc 900
ggaaccctg agggaaacatt tggttccatg ggtgtgtatt ctgatggttc atacggtgtg 960
cctgctgggc ttatctactc cttcccagta acttgctgag gtggtgaatg gacaattggt 1020

caagggctcc cgatcgacga gttctcaaga aagaagatgg atgccacagc ccaggagctc 1080
 tcggaggaga aggctctcgc ctactcgtgc ctcgagtaac tgcataccag ggagcagctg 1140
 ccgctctgat gttttgaata aaaggaacat tttggctcca tgaaactcat ctccactcag 1200
 aacagttgca catcgcggtg ccttttagctg gtttttccag tgtgtatgaa tgaggctttt 1260
 gtagctctat tttcgcctga tgatttacag gacaggatat tggcaggaag attggaacaa 1320
 tttgacgtct gattaaaacc aacctcttat tattcctgtg tgtatgaatg aggcttttgt 1380
 agctctat tt tcgcctgatg atttacaggc catgatattg gcaggaggat tggaacaatt 1440
 tgacgcctga ttaaaaccaa cctcttatta ctaaaaaaaaa aaaa 1484

<210> 47
 <211> 333
 <212> PRT
 <213> *Lolium perenne*

<400> 47

Met Ala Ala Lys Glu Pro Met Arg Val Leu Val Thr Gly Ala Ala Gly
 1 5 10 15

Gln Ile Gly Tyr Ala Leu Val Pro Met Ile Ala Arg Gly Ile Met Leu
 20 25 30

Gly Ala Asp Gln Pro Val Ile Leu His Met Leu Asp Ile Pro Pro Ala
 35 40 45

Ala Glu Ala Leu Asn Gly Val Lys Met Glu Leu Val Asp Ala Ala Phe
 50 55 60

Pro Leu Leu Lys Gly Val Val Ala Thr Thr Asp Val Val Glu Ala Cys
 65 70 75 80

Thr Gly Val Asn Val Ala Val Met Val Gly Gly Phe Pro Arg Lys Glu
 85 90 95

Gly Met Glu Arg Lys Asp Val Met Ser Lys Asn Val Ser Ile Tyr Lys
 100 105 110

Ser Gln Ala Ser Ala Leu Glu Ala His Ala Ala Pro Asn Cys Lys Val
 115 120 125

Leu Val Val Ala Asn Pro Ala Asn Thr Asn Ala Leu Ile Leu Lys Glu
 130 135 140

Phe Ala Pro Ser Ile Pro Glu Lys Asn Ile Ser Cys Leu Thr Arg Leu
 145 150 155 160

Asp His Asn Arg Ala Leu Gly Gln Ile Ser Glu Arg Leu Asp Val Gln
 165 170 175

Val Ser Asp Val₁₈₀ Lys Asn Val Ile Ile₁₈₅ Trp Gly Asn His Ser₁₉₀ Ser Ser
 Gln Tyr Pro₁₉₅ Asp Val Asn His Ala₂₀₀ Thr Val Lys Thr Ser₂₀₅ Ser Gly Glu
 Lys Pro₂₁₀ Val Arg Glu Leu Val₂₁₅ Lys Asp Asp Glu Trp₂₂₀ Leu Asn Ala Gly
 Phe Ile Ala Thr Val Gln₂₃₀ Gln Arg Gly Ala Ala₂₃₅ Ile Ile Lys Ala Arg₂₄₀
 Lys Leu Ser Ser Ala₂₄₅ Leu Ser Ala Ala Ser₂₅₀ Ser Ala Cys Asp His₂₅₅ Ile
 Arg Asp Trp Val₂₆₀ Leu Gly Thr Pro Glu₂₆₅ Gly Thr Phe Val Ser₂₇₀ Met Gly
 Val Tyr Ser₂₇₅ Asp Gly Ser Tyr Gly₂₈₀ Val Pro Ala Gly Leu₂₈₅ Ile Tyr Ser
 Phe Pro₂₉₀ Val Thr Cys Cys Gly₂₉₅ Gly Glu Trp Thr Ile₃₀₀ Val Gln Gly Leu
 Pro Ile Asp Glu Phe Ser₃₁₀ Arg Lys Lys Met Asp₃₁₅ Ala Thr Ala Gln Glu₃₂₀
 Leu Ser Glu Glu Lys₃₂₅ Ala Leu Ala Tyr Ser₃₃₀ Cys Leu Glu

<210> 48
 <211> 770
 <212> DNA
 <213> Lolium perenne

<220>
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 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (639)..(639)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (658)..(658)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (687)..(687)
 <223> n is a, c, g, or t

<400> 48

tnacggagct gcttaaata gccccattc cgcctcgtct cactatcctt catcccgttg	60
tcgtcgcctc ctcccgaacc actctcccca tccccgaact ccagaaccgg ctccaatggc	120
ggcgaaggaa ccgatgcgcg tgctcgtcac cggcgccgca ggacaaattg gatatgctct	180
tgttccgatg attgctaggg gaattatgct tgggtcggac cagcctgtta ttctgcatat	240
gctggatatt ccaccagctg ctgaagctct taatggtggt aagatggagt tggttgatgc	300
cgcatttcca cttctcaagg gagttggtgc aacaactgat gttgttgagg cttgcactgg	360
tgtgaatggt gcggttatgg ttggtggatt ccccaggaag gagggaatgg aaaggaagga	420
tgttatgtct aagaatgttt caatctacaa atctcaagca tctgcccttg aagcccatgc	480
agccccgaat tgcaagggtc tggttggtgc caatccagca aacaccaatg ctcttatctt	540
aaaggagttt gctccatcta ttcctgagaa gaacatcagt tgtttgacct gcctagacca	600
taacagggca cttggtcaga tctctgagag acttgatgnc caagttagtg atgtgaanaa	660
tgttatcatc tggggcaatc actcttncag tcagtaccct gatgtgaacc acgccaccgt	720
gaagacttcc agtgccgaga agcctgttcg cgaacttggt aaagacgatg	770

<210> 49
 <211> 335
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (4)..(4)
 <223> n is a, c, g, or t

<220>
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 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
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 <222> (16)..(16)
 <223> n is a, c, g, or t

<220>
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 <222> (18)..(18)
 <223> n is a, c, g, or t

<220>
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 <222> (25)..(25)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (34)..(34)
 <223> n is a, c, g, or t

<220>
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 <222> (42)..(42)
 <223> n is a, c, g, or t

<220>
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 <222> (57)..(57)
 <223> n is a, c, g, or t

<220>
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 <222> (269)..(269)
 <223> n is a, c, g, or t

<220>
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 <222> (274)..(274)
 <223> n is a, c, g, or t

<220>
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 <222> (282)..(282)
 <223> n is a, c, g, or t

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 <222> (327)..(327)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (329)..(329)
 <223> n is a, c, g, or t

<400> 49	
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cgaactccag aaccggctcc aatggcgggc aaggaaccga tgcgcgtgct cgtcaccggc	120
gccgtaggac aaattggata tgctcttggt ccatgattg ctaggggaat tatgcttggt	180
gcggaccagc ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat	240
ggtgttaaga tggagttggt tgatgccgna tttncacttt tnaagggagt tggtgcaaca	300
actgatgttg ttgaggcttg cactggngng aatgt	335

<210> 50
 <211> 282
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (13)..(13)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (20)..(20)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (24)..(24)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (257)..(258)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (260)..(260)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (267)..(267)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (271)..(272)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (277)..(277)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (282)..(282)

<223> n is a, c, g, or t

<400> 50

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aactccagaa ccggctccaa tggcggcgaa ggaaccgatg cgcgtgctcg tcaccggcgc 120

cgcaggacaa attggatatg ctcttggtcc gatgattgct aggggaatta tgcttggtgc 180

ggaccagcct gttattctgc atatgctgga tattgcacca gctgctgaag ctcttaatgg 240

cgtaacatg gaagtgnntn ggcggcntag nctttntcg cn 282

<210> 51

<211> 202

<212> DNA

<213> Lolium perenne

<220>

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<222> (11)..(11)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (17)..(18)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (22)..(22)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (44)..(44)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (162)..(162)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (175)..(175)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (194)..(194)

<223> n is a, c, g, or t

<400> 51

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tccagaaccg gctccaatgg cggcgaagga accgatgcgc gtgctcgtca ccggcgccgc 120

aggacaaatt ggatatgctc ttgttccgat gattgctagg cnaattatgc ttgngtgca 180

ctagcctgtt attntgcata tc 202

<210> 52

<211> 650

<212> DNA

<213> Lolium perenne

<220>

<221> misc_feature

<222> (2)..(3)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (10)..(10)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (13)..(13)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (46)..(46)

<223> n is a, c, g, or t

<220>

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<222> (50)..(51)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (88)..(88)

<223> n is a, c, g, or t

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<400> 52
gnntaccttn ctncctgttg tcgtcgcttc ctcccgaacc actctncccn nccccgaact      60
ccagaaccgg ctccaatggc ggcgaagnaa cccgatgcgcg tgctcgtcac cggcgccgca      120
ggacaaattg gatatgctct tggtccgatg attgctaggg gaattatgct tgggtgtggac      180
cagcctgtta ttctgcatat gctggatatt ccaccagctg ctgaagctct taatggtgtt      240
aagatggagt tggttgatgc cgcatttcca cttctcaagg gagttgttgc aacaactgat      300
gttgttgagg cttgcaactg tgtgaatgtt gcggttatgg ttggtggatt cccaggaag      360
gagggaaatg aaaggaagga tggtatgtct aagaatgttt caatctacaa atctcaagca      420
tctgcccttg aagcccatgc agccccgaat tgcaaggttc tggttgttgc caatccagca      480
aacaccaatg ctcttatctt aaaggagttt gctccatcta ttcctgagaa gaacatcagt      540
tgtttgacct gcctagacca taacagggca cttggtcaga tctctgagag acttgatgcc      600
caagttagtg atgtgaagaa tggtatcatc tggggcaatc actcttccag      650

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<210> 53
<211> 660
<212> DNA
<213> Lolium perenne

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<220>
<221> misc_feature
<222> (2)..(3)
<223> n is a, c, g, or t

```

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<220>
<221> misc_feature
<222> (5)..(5)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (10)..(10)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (37)..(37)
<223> n is a, c, g, or t

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<400> 53
gnntnccttn ctcccgttgt cgtcgcttcc tcccgancca ctctcccttc cccgaactcc      60
agaaccggct ccaatggcgg cgaaggaacc gatgcgcgtg ctcgtcaccg gcgccgcagg      120
acaaattgga tatgctcttg ttccgatgat tgctagggga attatgcttg gtgcggacca      180
gcctgttatt ctgcatatgc tggatattcc accagctgct gaagctctta atggtgttaa      240
gatggagttg gttgatgccg catttccact tctcaaggga gttgttgcaa caactgatgt      300
tgttgaggct tgcaactggt tgaatgttgc ggttatgggt ggtggattcc ccaggaagga      360
gggaatggaa aggaaggatg ttatgtctaa gaatgtttca atctacaaat ctcaagcatc      420
tgcccttgaa gcccatgcag ccccgaattg caaggttctg gttgttgcca atccagcaaa      480
caccaatgct cttatcttaa aggagtttgc tccatctatt cctgagaaga acatcagttg      540

```

tttgacccgc ctagaccata acagggcact tggtcagatc tctgagagac ttgatgtcca 600
agttagtgat gtgaagaatg ttatcatctg gggcaatcac tcttcagtc agtaccctga 660

<210> 54
<211> 693
<212> DNA
<213> Lolium perenne

<220>
<221> misc_feature
<222> (24)..(24)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (443)..(443)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (524)..(524)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (533)..(533)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (569)..(569)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (591)..(591)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (600)..(600)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (614)..(614)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (660)..(660)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (675)..(676)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (680)..(680)
<223> n is a, c, g, or t

<400> 54

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gctttcctta tcccgttggt gctnctcctc ccgaccactc tccccatccc cgaactccag      60
aaccggctcc aatggcgggc aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac      120
aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc      180
ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga      240
tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgacgttg      300
ttgaggcttg cactggtgtg aatggtgcgg ttatggttgg tggattcccc aggaaggagg      360
gaatggaaag gaaggatggt atgtctaaga atgtttcaat ctacaaatct caagcatctg      420
cccttgaagc ccatgcagcc ccnaattgca aggttctggt tgttgccaat ccagcaaaca      480
ccaatgctct tatcttaaag gagtttgctc catctattcc tganaagaac atnagttggt      540
tgaccgcctt agaccataac agggcactng gtcagatctc tgagagactt natgtccaan      600
ttagtgatgt gaanaatggt atcatctggg gtaatcacc ttccagtcaa taccctgatn      660
tgaaccaccc ccccnnaaan acttccaggg cga                                     693

```

```

<210> 55
<211> 793
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (747)..(747)
<223> n is a, c, g, or t

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<400> 55
gctatccttc atcccgttggt cgtcgcctcc tcccgaacca ctctcccat ccccgaactc      60
cagaaccggc tccaatggcg gcgaaggaaac cgatgcgcgt gctcgtcacc ggccgccgag      120
gacaaattgg atatgctctt gttccgatga ttgctagggg aattatgctt ggtgcggacc      180
agcctgttat tctgcatatg ctggatattc caccagctgc tgaagctctt aatggtgtta      240
agatggagtt ggttgatgcc gcatttcac ttctcaaggg agttgttgca acaactgatg      300
ttgttgaggc ttgcactggt gtgaatgttg cggttatggt tgggtggattc cccaggaagg      360
agggaatgga aaggaaggat gttatgtcta agaatgtttc aatctacaaa tctcaagcat      420
ctgcccttga agcccatgca gccccgaatt gcaaggttct ggttggtgcc aatccagcaa      480
acaccaatgc tcttatctta aaggagtttg ctccatctat tcctgagaag aacatcagtt      540
gtttgaccgc cctagaccat aacagggcac ttggtcagat ctctgagaga cttgatgtcc      600
aagttagtga tgtgaagaat gttatcatct ggggcaatca ctcttcaggt cagtaccctg      660
atgtgaacca cgccaccgtg aagacttcca gtggcgagaa gcctgttcgc gaacttggtta      720
aagacgatga atggctaaat gcagggntca ttgccactgt ccagcagcgt ggtgctgcaa      780
tcatcaaagc gag                                     793

```

```

<210> 56
<211> 797

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<212> DNA
<213> *Lolium perenne*

<220>
<221> misc_feature
<222> (744)..(744)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (773)..(773)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (790)..(790)
<223> n is a, c, g, or t

<400> 56
gctatccttc atcccgttgt cgtcgcctcc tcccgaacca ctctcccat ccccgaactc 60
cagaaccggc tccaatggcg gcgaagggaac cgatgcgcgt gctcgtcacc ggcgccgcag 120
gacaaattgg atatgctctt gttccgatga ttgctagggg aattatgctt ggtgcggacc 180
agcctgttat tctgcatatg ctggatatcc caccagctgc tgaagctctt aatggtgtta 240
agatggagtt ggttgatgcc gcatttccac ttctcaaggg agttgttgca acaactgatg 300
ttgttgaggc ttgcactggg gtgaatgttg cgtttatggg tgggtggattc cccaggaagg 360
agggaatgga aaggaaggat gttatgtcta agaattgttc aatctacaaa tctcaagcat 420
ctgcccttga agcccatgca gccccgaatt gcaagggttct ggttggtgcc aatccagcaa 480
acaccaatgc tcttatctta aaggagtttg ctccatctat tcctgagaag aacatcagtt 540
gtttgacctg cctagaccat aacagggcac ttggtcagat ctctgagaga cttgatgtcc 600
aagttagtga tgtgaagaat gttatcatct ggggcaatca ctcttccagt cagtaccctg 660
atgtgaacca cgccaccgtg aagacttcca ggggcgagaa gcctgttcgc gaacttgtaa 720
aagacgatga atggctaaat gcanggggtca ttgccactgt ccagcagcgt ggngctgcaa 780
tcacaaagn gaggaac 797

<210> 57
<211> 684
<212> DNA
<213> *Lolium perenne*

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (8)..(8)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (11)..(11)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (681)..(681)

<223> n is a, c, g, or t

<400> 57

ntaccttinct	ncccgttgct	gtcgccctcct	cccgaaccac	tctccccctcc	ccgaactcca	60
gaaccggctc	caatggcggc	gaaggaaccg	atgcgcgtgc	tcgtcaccgg	cgccgcagga	120
caaattggat	atgctcttgt	tccgatgatt	gctaggggaa	ttatgcttgg	tgcgaccag	180
cctgttattc	tgcatatgct	ggatattcca	ccagccgctg	aagctcttaa	tggtgttaag	240
atggagttgg	ttgatgccgc	atttccactt	ctcaaggagg	ttgttgcaac	aactgatgtt	300
gttgaggctt	gacttggtgt	gaatgttgcg	gttatgggtg	gtggattccc	caggaaggag	360
ggaatggaaa	ggaaggatgt	tatgtctaag	aatgtttcaa	tctacaaatc	tcaagcatct	420
gcccttgaag	cccatgcagc	cccgaattgc	aaggttctgg	ttgttgccaa	tccagcaaac	480
accaatgctc	ttatcttaaa	ggagtttgct	ccatctattc	ctgagaagaa	catcagttgt	540
ttgaccgcc	tagaccataa	cagggcactt	ggtcagatct	ctgagagact	tgatgtccaa	600
gttagtgatg	tgaagaatgt	tatcatctgg	ggcaatcact	cttccagtca	gtaccctgat	660
gtgaaccacg	ccaccgtgaa	nact				684

<210> 58

<211> 707

<212> DNA

<213> Lolium perenne

<220>

<221> misc_feature

<222> (2)..(3)

<223> n is a, c, g, or t

<400> 58

gnntaccttc	tccccctgtc	gtcacctcct	cccgaaccac	tctccccatc	cccgaactcc	60
agaaccggct	ccaatggcgg	cgaaggaacc	gatgcgcgtg	ctcgtcaccg	gcgccgcagg	120
acaaattgga	tatgctcttg	ttccgatgat	tgctagggga	attatgcttg	gtgcggaacca	180
gcctgttatt	ctgcatatgc	tggatattcc	accagctgct	gaagctctta	atggtgttaa	240
gatggagttg	gttgatgccg	catttccact	tctcaaggga	gttggttgcaa	caactgatgt	300
tggtgaggct	tgactgggtg	tgaatgttgc	ggttatgggt	ggtggattcc	ccaggaagga	360
gggaatggaa	aggaaggatg	ttatgtctaa	gaatgtttca	atctacaaat	ctcaagcatc	420
tgcccttgaa	gcccatgcag	ccccgaattg	caaggttctg	gttggttgcca	atccagcaaa	480
caccaatgct	cttatcttaa	aggagtttgc	tccatctatt	cctgagaaga	acatcagttg	540
tttgaccgc	ctagaccata	acagggcact	tggtcagatc	tctgagagac	ttgatgtcca	600
agttagtgat	gtgaagaatg	ttatcatctg	gggcaatcac	tcttccagtc	agtaccctga	660
tgtgaaccac	gccaccgtga	agacttccag	tggcgagaag	cctgttc		707

<210> 59
 <211> 801
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (685)..(685)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (799)..(799)
 <223> n is a, c, g, or t

<400> 59
 ctatccttat cccgttgctg tcgcctcctc ccgaccactc tccccatccc cgaactccag 60
 aaccggctcc aatggcggcg aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac 120
 aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc 180
 ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga 240
 tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg 300
 ttgaggcttg cactgggtgtg aatggtgcgt ttatggttgg tggattcccc aggaaggagg 360
 gaatggaaag gaaggatggt atgtctaaga atgtttcaat ctacaaatct caagcatctg 420
 cccttgaagc ccatgcagcc ccgaattgca aggttctggt tgttgccaat ccagcaaaca 480
 ccaatgctct tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttggt 540
 tgacccgcct agaccataac agggcacttg gtcagatctc tgagagactt gatgtccaag 600
 ttagtgatgt gaagaatggt atcatctggg gcaatcactc ttccagtcag taccctgatg 660
 tgaaccacgc caccgtgaag acttncagt gcgagaagcc tgttcgcgaa cttgttaaag 720
 acgatgaatg gctaaatgca gggttcattg ccactgtcca gcagcgtggt gctgcaatca 780
 tcaaagcgag gaagctctnc a 801

<210> 60
 <211> 563
 <212> DNA
 <213> *Lolium perenne*

<400> 60
 gatccttatc ccgttgctgt cgcctcctcc cgaccactct ccccatcccc gaactccaga 60
 accggctcca atggcggcga aggaaccgat gcgcgtgctc gtcaccggcg ccgcaggaca 120
 aattggatat gctcttggtc cgatgattgc taggggaatt atgcttggtg cggaccagcc 180
 tgttattctg catatgctgg atattccacc agctgctgaa gctcttaatg gtgttaagat 240
 ggagttgggt gatgccgcat ttccacttct caagggaggt gttgcaacaa ctgatgttgt 300
 tgaggcttgc actggtgtga atggtgcggt tatggttggt ggattcccca ggaaggaggg 360
 aatggaaagg aaggatgtta tgtctaagaa tgtttcaatc tacaaatctc aagcatctgc 420

ccttgaagcc catgcagccc cgaattgcaa ggttcttggt gttgccaatc cagcaaacac	480
caatgctctt atcttaaagg agtttgctcc atctattcct gagaagaaca tcagttgttt	540
gacccgccta gaccataaca ggc	563

<210> 61
 <211> 692
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (34)..(34)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (692)..(692)
 <223> n is a, c, g, or t

<400> 61 gnnaccttct cccgttgctg tcgcctcctc ccgnaccact ctccccctccc cgaactccag	60
aaccggctcc aatggcggcg aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac	120
aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc	180
ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga	240
tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg	300
ttgaggcttg cactgggtgtg aatggtgcgg ttatggttgg tggattcccc aggaaggagg	360
gaatggaaag gaaggatggt atgtctaaga atgtttcaat ctacaaatct caagcatctg	420
cccttgaagc ccatgcagcc ccgaattgca aggttctggt tgttgccaat ccagcaaaca	480
ccaatgctct tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttggt	540
tgacccgcct agaccataac agggcactcg gtcagatctc tgagagactt gatgtccaag	600
ttagtgatgt gaagaatggt atcatctggg gtaatcactc ttccagtcaa taccctgatg	660
tgaaccacgc caccgtgaag acttccagtg gn	692

<210> 62
 <211> 764
 <212> DNA
 <213> Lolium perenne

<400> 62 gatccttcat cccgttgctg tcgcctcctc ccgaccactc tccccatccc cgaactccag	60
aaccggctcc aatggcggcg aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac	120
aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc	180
ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga	240

```

tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg 300
ttgaggcttg cactggtgtg aatggtgcgg ttatggttgg tggattcccc aggaaggagg 360
gaatggaaag gaaggatggt atgtctaaga atgtttcaat ctacaaatct caagcatctg 420
cccttgaagc ccatgcagcc ccgaattgca aggttctggt tgttgccaat ccagcaaaca 480
ccaatgctct tatcttaaag gagttcgctc catctattcc tgagaagaac atcagttggt 540
tgacccgcct agaccataac agggcacttg gtcagatctc tgagagactt gatgtccaag 600
ttagtgatgt gaagaatggt atcatctggg gcaatcactc ttccagtcag taccctgatg 660
tgaaccacgc caccgtgaag acttccagtg gcgagaagcc tgttcgcgaa cttgttaaag 720
acgatgaatg gctaaatgca gggttcattg ccactgtcca gcag 764

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<210> 63
<211> 769
<212> DNA
<213> Lolium perenne

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```

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

```

```

<400> 63
gntccttcat cccgttggtc tgcctcctc ccgaccactc tccccatccc cgaactccag 60
aaccggctcc aatggcgggc aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac 120
aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc 180
ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga 240
tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg 300
ttgaggcttg cactggtgtg aatggtgcgg ttatggttgg tggattcccc aggaaggagg 360
gaatggaaag gaaggatggt atgtctaaga atgtttcaat ctacaaatct caagcatctg 420
cccttgaagc ccatgcagcc ccgaattgca aggttctggt tgttgccaat ccagcaaaca 480
ccaatgctct tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttggt 540
tgacccgcct agaccataac agggcactcg gtcagatctc tgagaggctt gatgtccaag 600
ttagtgatgt gaagaatggt atcatctggg gtaatcactc ttccagtcaa taccctgatg 660
tgaaccacgc caccgtgaag acttccagtg gcgagaagcc tgttcgcgaa cttgttaaag 720
acgatgaatg gctaaatgca gggttcattg ccactgtcca gcagcgtgg 769

```

```

<210> 64
<211> 770
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (763)..(763)
<223> n is a, c, g, or t

```

```

<400> 64
gatccttatc ccgttgctcg cgcctcctcc cgaccactct ccccatcccc gaactccaga      60
accggctcca atggcgggcg aggaaccgat gcgcgtgctc gtcaccggcg ccgcaggaca      120
aattggatat gctcttggtc cgatgattgc taggggaatt atgcttggtg cggaccagcc      180
tggtattctg catatgctgg atattccacc agctgctgaa gctcttaatg gtgttaagat      240
ggagttggtt gatgccgcat ttccacttct caagggagtt gttgcaacaa ctgatgttgt      300
tgaggcttgc actggtgtga atgttgcggt tatggttggt ggattcccca ggaaggaggg      360
aatggaaagg aaggatgtta tgtctaagaa tgtttcaatc tacaaatctc aagcatctgc      420
ccttgaagcc catgcagccc cgaattgcaa ggttctgggt gttgccaatc cagcaaacac      480
caatgctctt atcttaaagg agtttgctcc atctattcct gagaagaaca tcagttgttt      540
gacccgccta gaccataaca gggcacttgg tcagatctct gagagacttg atgtccaagt      600
tagtgatgtg aagaatgtta tcatctgggg caatcactct tccagtcagt accctgatgt      660
gaaccacgcc accgtgaaga cttccagtgg cgagaagcct gttcgcgaaac ttgttaaaga      720
cgatgaatgg ctaaatgcag gggttcattgc cactgtccag cancgtggtg      770

```

```

<210> 65
<211> 779
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

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<400> 65
gntccctcat cccgttgctg tcgcctcctc ccgaccactc tccccatccc cgaactccag      60
aaccggctcc aatggcgggc aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac      120
aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc      180
ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga      240
tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcgaca actgatgttg      300
ttgaggcttg cactggtgtg aatggtgcgg ttatggttgg tggattcccc aggaaggagg      360
gaatggaaag gaaggatggt atgtctaaga atgtttcaat ctacaaatct caagcatctg      420
cccttgaagc ccatgcagcc ccgaattgca aggttctgggt tgttgccaat ccagtaaaca      480
ccaatgctct tctcctaaag gagtttgctc catctattcc tgagaagaac atcagttgtt      540
tgacccgcct agaccataac agggcactcg gtcagatctc tgagagactt gatgtccaag      600
ttagtgatgt gaagaatggt atcatctggg gtaatcactc ttccagtcaa taccctgatg      660
tgaaccacgc caccgtgaag acttccagtg gcgagaagcc tgttcgcgaa cttgttaaag      720
acgatgaatg gctaaatgca ggggttcattg ccactgtcca gcagcgtggt gctgcaatc      770

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<210> 66
 <211> 788
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (643)..(643)
 <223> n is a, c, g, or t

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<400> 66
gnnccttcat cccgttgctg tcgcctcctc ccgaccactc tccccatccc cgaactccag      60
aaccggctcc aatggcggcg aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac      120
aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc      180
ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga      240
tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg      300
ttgaggcttg cactgggtgtg aatgttgcgg ttatggttgg tggattcccc aggaaggagg      360
gaatggaaag gaaggatgtt atgtctaaga atgtttcaat ctacaaatct caagcatccg      420
cccttgaagc ccatgcagcc ccgaattgca aggttctggt tgttgccaat ccagcaaaca      480
ccaatgctct tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttgtt      540
tgacccgcct agaccataac agggcacttg gtcagatctc tgagagactt gatgtccaag      600
ttagtgatgt gaagaatgtt atcatctggg gcaatcactc ttncagtcag taccctgatg      660
tgaaccacgc caccgtgaag acttccagtg gcgagaagcc tgttcgcgaa cttgttaaag      720
acgatgaatg gctaaatgca gggttcattg ccactgtcca acagcgtggt gctgcaatca      780
tcaaagcg                                     788
```

<210> 67
 <211> 794
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> n is a, c, g, or t

```
<400> 67
gttccttntc ccgttgctgt cgcctcctcc cgaccactct ccccatcccc gaactccaga      60
accggctcca atggcggcga aggaaccgat gcgcgtgctc gtcaccggcg ccgcaggaca      120
aattggatat gctcttggtc cgatgattgc taggggaatt atgcttggtg cggaccagcc      180
tgttattctg catatgctgg atattccacc agctgctgaa gctcttaatg gtgttaagat      240
ggagttggtt gatgccgcat ttccacttct caagggagtt gttgcaacaa ctgatgttg      300
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tgaggcttgc actggtgtga atgttgcggt tatggttggt ggattcccca ggaaggaggg	360
aatggaaagg aaggatgtta tgtctaagaa tgtttcaatc tacaaatctc aagcatctgc	420
ccttgaagcc catgcagccc cgaattgcaa gggttctgggt gttgccaatc cagcaaacac	480
caatgctctt atcttaaagg agtttgctcc atctattcct gagaagaaca tcagttgttt	540
gaccgccta gaccataaca gggcactcgg tcagatctct gagaggcttg atgtccaagt	600
tagtgatgtg aagaatgtta tcatctgggg taatcactct tccagtcaat accctgatgt	660
gaaccacgcc accgtgaaga cttccagtgg cgagaagcct gttcgcgaaac ttgttaaaga	720
cgatgaatgg ctaaatgcag gggttcattgc cactgtccag cagcgtgggtg ctgcaatcat	780
caaagcgagg aagc	794

<210> 68
 <211> 797
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (489)..(489)
 <223> n is a, c, g, or t

<220>
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 <222> (734)..(734)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (757)..(757)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (776)..(776)
 <223> n is a, c, g, or t

<400> 68	
gntccttcat cccgttgctg tcgcctcctc ccgaccactc tccccatccc cgaactccag	60
aaccggctcc aatggcgggc aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac	120
aaattggata tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc	180
ctgttattct gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga	240
tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg	300
ttgaggcttg cactggtgtg aatgttgctg ttatggttgg tggattcccc aggaaggagg	360
gaatggaaag gaaggatgtt atgtctaaga atgtttcaat ctacaaatct caagcatccg	420
cccttgaagc ccatgcagcc ccgaattgca aggttctgggt tgttgccaat ccagcaaaca	480
ccaatgctnt tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttggt	540

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tgacccgcct agaccataac agggcacttg gtcagatctc tgagagactt gatgtccaag 600
ttagtgatgt gaagaatggt atcatctggg gcaatcactc ttccagtcag taccctgatg 660
tgaaccacgc caccgtgaag acttccagtg gcgagaagcc tgttcgcgaa cttgttaaag 720
acgatgaatg gctnaatgca gggttcattg ccactgncca gcagcgtggt gctgcnatca 780
tcaaagcgag gaagctt 797

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<210> 69
<211> 802
<212> DNA
<213> Lolium perenne

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<220>
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<222> (222)..(222)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (685)..(685)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (770)..(770)
<223> n is a, c, g, or t

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<400> 69
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aaccggctcc aatggcgggc aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac 120
aaattggata tgctcttggt ccgatgattg ctagggggaat tatgcttggt gcggaccagc 180
ctgttattct gcatatgctg gatattccac cagctgctga anctcttaat ggtgttaaga 240
tggagttggt tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg 300
ttgaggcttg cactgggtgtg aatgttgctg ttatgggttg tggattcccc aggaaggagg 360
gaatggaaag gaaggatggt atgtctaaga atgtttcaat ctacaaatct caagcatctg 420
cccttgaagc ccatgcagcc ccgaattgca aggttctggt tgttgccaat ccagcaaaca 480
ccaatgctct tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttggt 540
tgacccgcct agaccataac agggcacttg gtcagatctc tgagagactt gatgtccaag 600
ttagtgatgt gaagaatggt atcatctggg gcaatcactc ttccagtcag taccctgatg 660
tgaaccacgc caccgtgaag acttncagtg gcgagaagcc tgttcgcgaa cttgttaaag 720
acgatgaatg gctaaatgca gggttcattg ccactgtcca gcagcgtggn gctgcatcat 780
caaagcgagg aagctcttca gt 802

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<210> 70
<211> 315
<212> DNA
<213> Lolium perenne

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<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (13)..(13)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (153)..(153)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (257)..(257)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (302)..(302)
 <223> n is a, c, g, or t

<400> 70	
gnccttnatc ccnttgctgt cgcctcctcc cgaccactct ccccatcccc gaactccaga	60
accggctcca atggcggcca aggaaccgat gcgcgtgctc gtcaccggcg ccgcaggaca	120
aattggatat gctcttggtc cgatgattgc tangggaatt atgcttggtg cggaccagcc	180
tgttattctg catatgctgg atattccacc agctgctgaa gctcttaatg gtgttaagat	240
ggagttgggt gatgccncat ttccacttct caagggagtt gttgcaacaa ctgatgttgt	300
tnaggcttgc actgg	315

<210> 71
 <211> 525
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (26)..(26)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature

<222> (78)..(78)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (269)..(269)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (493)..(493)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (515)..(515)
 <223> n is a, c, g, or t

<400> 71
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 accggctcca atggcgngga aggaaccgat gcgcgtgctc gtcaccggcg ccgcaggaca 120
 aattggatat gctcttggtc cgatgattgc taggggaatt atgcttggtg cggaccagcc 180
 tgttattctg catatgctgg atattccacc agctgctgaa gctcttaatg gtgttaagat 240
 ggagttgggt gatgccgat ttccacttnt caaggaggtt gttgcaacaa ctgatgttgt 300
 tgaggcttgc actggtgtga atgttgcggt tatggttggt ggattcccca ggaaggaggg 360
 aatggaaagg aaggatgtta tgtctaagaa tgtttcaatc tacaaatctc aagcatctgc 420
 ccttgaagcc catgcagccc cgaattgcaa ggttctggtt gttgccaatc cagcaaacac 480
 caatgctctt atnttaaagg agtttgctcc atctnttctt gagaa 525

<210> 72
 <211> 696
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (547)..(547)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (603)..(603)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (613)..(613)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (632)..(632)
 <223> n is a, c, g, or t

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<220>
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 <222> (642)..(642)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (646)..(646)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (674)..(674)
 <223> n is a, c, g, or t

<220>
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 <222> (681)..(681)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (683)..(683)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (691)..(691)
 <223> n is a, c, g, or t

<400> 72
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 accggctcca atggcggcga aggaaccgat gcgcgtgctc gtcaccggcg ccgcaggaca 120
 aattggatat gctcttggtc cgatgattgc taggggaatt atgcttggtg cggaccagcc 180
 tgttattctg catatgctgg atattccacc agctgctgaa gctcttaatg gtgttaagat 240
 ggagttgggt gatgccgat ttccacttct caagggaggt gttgcaacaa ctgatgttgt 300
 tgaggcttgc actggtgtga atgttgcggt tatggttggt ggattcccca ggaaggaggg 360
 aatggaaagg aaggatgtta tgtctaagaa tgtttcaatc tacaaatctc aagcatctgc 420
 ccttgaagcc catgcagccc cgaattgcaa ggttctgggt gttgccaatc cagcaaacac 480
 caatgctctt atcttaaagg agtttgctcc atctattcct gagaagaaca tcagatgttt 540
 gacccgncta gaccataaca gggcactcgg tcagatctct gagagacttg atgtgcaagt 600
 tancgatgtg aanaatgcta tcatctgggg anatcactct tncagncata ccctgatgtg 660
 aaccacgcca ccngaacac ntncactgcc nacaag 696

<210> 73
 <211> 646
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

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<400> 73
tccttnatcc cgttgtcgtc gcctcctccc gaaccctctc cccatccccg aactccagaa      60
ccgggtccaa tggcggcgaa ggaaccgatg cgcgtgctcg tcaccggcgc cgcaggacaa      120
attggatatg ctcttggtcc gatgattgct aggggaatta tgcttggtgc ggaccagcct      180
gttattctgc atatgctgga tattccacca gctgctgaag ctcttaatgg tgttaagatg      240
gagttgggtg atgccgcatt tccacttctc aaggagggtg ttgcaacaac tgatgttggt      300
gaggcttgca ctggtgtgaa tgttgcgggt atggttggtg gattccccag gaaggaggga      360
atggaaagga aggatgttat gtctaagaat gtttcaatct acaaatctca agcatctgcc      420
cttgaagccc atgcagcccc gaattgcaag gttctgggtg ttgccaatcc agcaaacacc      480
aatgctctta tcttaaagga gtttgctcca tctattcctg agaagaacat cagttgtttg      540
acccgcctag accataacag ggcacttggg cagatctctg agagacttga tgtccaagtt      600
agtgatgtga aaaatgttat catctggggc aatcactctt ccagtc                      646

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<210> 74
<211> 711
<212> DNA
<213> Lolium perenne

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<220>
<221> misc_feature
<222> (8)..(8)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (642)..(642)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (679)..(679)
<223> n is a, c, g, or t

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<400> 74
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accgggtcca atggcggcga aggaaccgat gcgcgtgctc gtcaccggcg ccgcaggaca      120
aattggatat gctcttggtc cgatgattgc taggggaatt atgcttggtg cggaccagcc      180
tgttattctg catatgctgg atattccacc agctgctgaa gctcttaatg gtgttaagat      240
ggagttgggt gatgccgcatt ttccacttct caaggagggt gttgcaacaa ctgatgttgt      300
tgaggcttgc actggtgtga atgttgcggt tatggttggt ggattcccca ggaaggaggg      360
aatggaaagg aaggatgtta tgtctaagaa tgtttcaatc taaaatctc aagcatctgc      420
ccttgaagcc catgcagccc cgaattgcaa ggttctgggt gttgccaatc cagcaaacac      480
caatgctctt atcttaaagg agtttgctcc atctattcct gagaagaaca tcagttgttt      540
gacccgccta gaccataaca gggcactcgg tcagatctct gagagacttg atgtccaagt      600
tagtgatgtg aagaatgtta tcatctgggg taatcactct tncagtcaat accctgatgt      660

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gaaccacgcc accgtgaana ctttcagtgg cgagaagcct gttcgcgaaac t 711

<210> 75
 <211> 768
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

<400> 75
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 cggctccaat ggcggcgaag gaaccgatgc gcgtgctcgt caccggcgcc gcaggacaaa 120
 ttggatatgc tcttgttccg atgattgcta ggggaattat gcttggtgcg gaccagcctg 180
 ttattctgca tatgctggat attccaccag ctgctgaagc tcttaatggg gttaagatgg 240
 agttggttga tgccgcattt ccacttctca agggagttgt tgcaacaact gatgttggtg 300
 aggcttgcac tgggtgtgaat gttgcggtta tgggttggtgg attccccagg aaggagggaa 360
 tggaaaggaa ggatgttatg tctaagaatg tttcaatcta caaatctcaa gcatctgccc 420
 ttgaagccca tgcagccccg aattgcaagg ttctggttgt tgccaatcca gcaaacacca 480
 atgctcttat cttaaaggag tttgctccat ctattcctga gaagaacatc agttgtttga 540
 cccgcctaga ccataacagg gcacttggtc agatctctga gagacttgat gtccaagtta 600
 gtgatgtgaa gaatgttatc atctggggca atcactcttc cagtcagtac cctgatgtga 660
 accacgccac cgtgaagact tccagtggcg agaagcctgt tcgcgaactt gttaaagacg 720
 atgaatggct aaatgcaggg ttcatgtcca ctgtccagca gcgtggtg 768

<210> 76
 <211> 783
 <212> DNA
 <213> Lolium perenne

<400> 76
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 cggctccaat ggcggcgaag gaaccgatgc gcgtgctcgt caccggcgcc gcaggacaaa 120
 ttggatatgc tcttgttccg atgattgcta ggggaattat gcttggtgcg gaccagcctg 180
 ttattctgca tatgctggat attccaccag ctgctgaagc tcttaatggg gttaagatgg 240
 agttggttga tgccgcattt ccacttctca agggagttgt tgcaacaact gatgttggtg 300
 aggcttgcac tgggtgtgaat gttgcggtta tgggttggtgg attccccagg aaggagggaa 360
 tggaaaggaa ggatgttatg tctaagaatg tttcaatcta caaatctcaa gcatctgccc 420
 ttgaagccca tgcagccccg aattgcaagg ttctggttgt tgccaatcca gcaaacacca 480
 atgctcttat cttaaaggag tttgctccat ctattcctga gaagaacatc agttgtttga 540
 cccgcctaga ccataacagg gcacttggtc agatctctga gagacttgat gtccaagtta 600

gtgatgtgaa gaatgttatc atctggggca atcactcttc cagtcagtac cctgatgtga	660
accacgccac cgtgaagact tccagtggcg agaagcctgt tcgcgaactt gttaaagacg	720
atgaatggct aaatgcaggg ttcattgccca ctgtccagca gcgtgggtgct gcaatcatca	780
aag	783

<210> 77
 <211> 803
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (713)..(713)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (797)..(797)
 <223> n is a, c, g, or t

<400> 77	
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ccggctccaa tggcggcgaa ggaaccgatg cgcgtgctcg tcaccggcgc cgcaggacaa	120
attggatatg ctcttggttc gatgattgct aggggaatta tgcttggtgc ggaccagcct	180
gttattctgc atatgctgga tattccacca gctgctgaag ctcttaatgg tgtaaatg	240
gagttggttg atgccgcatt tccacttctc aaggaggttg ttgcaacaac tgatgttggt	300
gaggcttgca ctggtgtgaa tgttgcggtt atggttggtg gattccccag gaaggagga	360
atggaaagga aggatgttat gtctaagaat gtttcaatct acaaactctca agcatctgcc	420
cttgaagccc atgcagcccc gaattgcaag gttctggttg ttgccaatcc agcaaacc	480
aatgctctta tcttaaagga gtttgctcca tctattcctg agaagaacat cagttgtttg	540
accgcctag accataacag ggcactcggc cagatctctg agaggcttga tgtccaagtt	600
agtgatgtga agaattgttat catctggggt aatcactctt ccagtcaata ccctgatgtg	660
aaccacgcca cgtgaagac ttccagtggc gagaagcctg ttcgcgaact tgntaaagac	720
gatgaatggc taaatgcagg gttcattgcc actgtccagc agcgtgggtg tgcaatcatc	780
aaagcgagga agctctncag tgc	803

<210> 78
 <211> 595
 <212> DNA
 <213> *Lolium perenne*

<220>
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<222> (386)..(386)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (439)..(439)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (496)..(496)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (510)..(510)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (520)..(520)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (529)..(529)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (531)..(531)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (558)..(558)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (561)..(562)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (567)..(567)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (578)..(578)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (580)..(580)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (588)..(588)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (590)..(590)
<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (595)..(595)
 <223> n is a, c, g, or t

<400> 78
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 ttggatatgc tcttgttccg atgattgcta ggggaattat gcttggtgcg gaccagcctg 180
 ttattctgca tatgctggat attccaccag ctgctgaagc tcttaatggg gttaagatgg 240
 agttgggtga tgccgcattt ccacttctca agggagttgt tgcaacaact gatgttggtg 300
 aggcttgac tggtgtgaat gttgcggtta tgggtgggtg attccccagg aaggagggaa 360
 tggaaaggaa ggatgttatg tctaanaatg tttcaatcta caaatcttaa gcatctgccc 420
 ttgaagccca tgcacccna attgcaaggg tctggttggt gccaatccag caaacaccaa 480
 tgcttttatt ttaaangagt ttgctccatn tattcctgan aagaacatna nttgtttgac 540
 ccgcctagac cataacangg nncttgncaa aatctttnan agacttgnn tcaan 595

<210> 79
 <211> 696
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (1)..(1)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (120)..(120)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (335)..(335)
 <223> n is a, c, g, or t

<220>
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 <222> (387)..(387)
 <223> n is a, c, g, or t

<220>
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 <222> (482)..(482)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (603)..(603)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (608)..(608)
 <223> n is a, c, g, or t

<220>
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 <222> (612)..(612)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (674)..(674)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (689)..(689)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (695)..(696)
 <223> n is a, c, g, or t

<400> 79
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 ccggctccaa tggcggcgaa ggaaccgatg cgcgtgctcg tcaccggcgc cgcaggacan 120
 attggatatg ctcttggtcc gatgattgct aggggaatta tgcttggtgc ggaccagcct 180
 gttattctgc atatgctgga tattccacca gctgctgaag ctcttaatgg tgtaagatg 240
 gagttgggtg atgccgcatt tccacttctc aaggaggtg ttgcaacaac tgatgttggt 300
 gaggcttgca ctggtgtgaa tggtgcggtt atgngtggtg gattccccag gaaggaggga 360
 atggaaagga aggatgttat gtctaanaat gtttcaatct acaaactctca agcatctgcc 420
 cttgaagccc atgcagcccc gaattgcaag gttctggttg ttgccaatcc agcaaacc 480
 antgctctta tcttaaagga gtttgctcca tctatccctg agaagaacat cagttgtttg 540
 acccgcttag accataacag ggcacttggt cagatctctg agagacttga tgtccaagtt 600
 agngatgnga anaatgttat catctggggc aatcactctt ccagtcagta ccctgatgtg 660
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<210> 80
 <211> 779
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (77)..(77)
 <223> n is a, c, g, or t

<400> 80
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 cggctccaac ggcggcnaag gaaccgatgc gcgtgctcgt caccggcgcc gcaggacaaa 120
 ttggatatgc tcttggtccg atgattgcta ggggaattat gcttggtgcg gaccagcctg 180

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ttattctgca tatgctggat attccaccag ctgctgaagc tcttaatggt gttaagatgg      240
agttgggttga tgccgcattt ccacttctca agggagttgt tgcaacgact gatgttgttg      300
aggcttgcac tgggtgtgaat gttgcggtta tggttggttg attccccagg aaggagggaa      360
tggaaggaa ggatgttatg tctaagaatg tttcaatcta caaatctcaa gcatctgccc      420
ttgaagccca tgcagccccg aattgcaagg ttctggttgt tgccaatcca gcaaacacca      480
atgctcttat cttaaaggag tttgctccat ctattcctga gaagaacatc agttgtttga      540
ccgcctaga ccataacagg gcacttggtc agatctctga gagacttgat gtccaagtta      600
gtgatgtgaa gaatgttatc atctggggca atcactcttc cagtcagtac cctgatgtga      660
accacgccac cgtgaagact tccagtggcg agaagcctgt tcgcgaactt gttaaagacg      720
atgaatggct aaatgcaggg ttcattgcca ctgtccagca gcgtggtgct gcaatcata      779

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<210> 81
<211> 470
<212> DNA
<213> Lolium perenne

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<220>
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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<400> 81
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ttggatatgc tcttgttccg atgattgcta ggggaattat gcttggtgctg gaccagcctg      180
ttattctgca tatgctggat attccaccag ctgctgaagc tcttaatggt gttaagatgg      240
agttgggttga tgccgcattt ccacttctca agggagttgt tgcaacaact gatgttgttg      300
aggcttgcac tgggtgtgaat gttgcggtta tggttggttg attccccagg aaggagggaa      360
tggaaggaa ggatgttatg tctaagaatg tttcaatcta caaatctcaa gcatctgccc      420
ttgaagccca tgcagccccg aattgcaagg ttctggttgt tgccaatcca      470

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<210> 82
<211> 599
<212> DNA
<213> Lolium perenne

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<220>
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<223> n is a, c, g, or t

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<220>

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 <222> (6)..(6)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (580)..(580)
 <223> n is a, c, g, or t

<400> 82
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 ggctccaatg gcggcggaagg aaccgatgcg cgtgctcgtc accggcgccg caggacaaat 120
 tggatatgct cttgttccga tgattgctag gggaattatg cttggtgcgg accagcctgt 180
 tattctgcat atgctggata ttccaccagc tgctgaagct cttaatggtg ttaagatgga 240
 gttggttgat gccgcatttc cacttctcaa gggagttggt gcaacaactg atgttggtga 300
 ggcttgact ggtgtgaatg ttgcgggttat ggttggtgga ttccccagga aggaggggaat 360
 ggaaaggaag gatgttatgt ctaagaatgt ttcaatctac aaatctcaag catctgccct 420
 tgaagcccat gcagccccga attgcaaggt tctggttggt gccaatccag caaacaccaa 480
 tgctcttatc ttaaaggagt ttgctccatc tattcctgag aagaacatca gttgtttgac 540
 ccgcctagac cataacaggg cacttggtca gatctctgan agacttgatg tccaagtta 599

<210> 83
 <211> 606
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
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 <222> (6)..(6)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

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<221> misc_feature
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 <223> n is a, c, g, or t

<220>
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 <222> (569)..(569)
 <223> n is a, c, g, or t

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 ttggatatgc tcttgttccg atgattgcta ggggaattat gcttggtgcg gaccagcctg 180
 ttattctgca tatgctggat attccaccag ctgctgaagc tcttaatggt gttaagatgg 240
 agttgggtga tgccgcattt ccacttctca agggagtgtg tgcaacaact gatgttggtg 300
 aggcttgcac tgggtggaat gctgcgggta tggttggtgg attccccagg aaggagggaa 360
 tggaaaggaa ggatgttatg tctaagaatg tttcaatcta caaatctcaa gcatctgccc 420
 ttgaagccca tgcagccccg aattgcaagg ttctggttgt tgccaatcca gcaaacacca 480
 atgctcttat cttaaaggag tttgctccat ctattcctga gaagaacatc agttgtttga 540
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 gtgatg 606

<210> 84
 <211> 686
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (1)..(1)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> n is a, c, g, or t

<400> 84
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 tggatatgct cttgttccga tgattgctag gggaattatg ctcggtgcgg accagcctgt 180
 tattctgcat atgctggata ttccaccagc tgctgaagct cttaatggtg ttaagatgga 240
 gttgggttgat gccgcatttc cacttctcaa gggagtgtgt gcaacaactg atgttggtga 300
 ggcttgcaact ggtgtgaatg ttgcggttat ggttggtgga ttccccagga aggagggaaat 360
 ggaaaggaag gatgttatgt ctaagaatgt ttcaatctac aaatctcaag catctgccct 420
 tgaagccatg cagccccgaa ttgcaagggt ctggttggtg ccaatccagc aaacaccaat 480
 gctcttatct taaaggagtt tgctccatct attcctgaga agaacatcag ttgtttgacc 540

cgccctagacc ataacagggc acttggtcag atctctgaga gacttgatgt ccaagttagt 600
 gatgtgaaga atgttatcat ctggggcaat cactcttcca gtcagtaccc tgatgtgaac 660
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<210> 85
 <211> 341
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
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 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (297)..(297)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (305)..(305)
 <223> n is a, c, g, or t

<400> 85
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 ggctccaatg gcggcgagg aaccgatgcg cgtgctcttc accggcgccg caggacaaat 120

tggaatgct cttgttccga tgattgctan gggaattatg cttggtgcgg accancctgt	180
tattctgcat atgctggata ttccaccagc tgctgaagct cttaatggtg ttaagatgga	240
gttggttgat gccgcatttc cacttctcaa gggagntgnt gcaacaactg atgttgntga	300
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<210> 86
 <211> 349
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (245)..(245)
 <223> n is a, c, g, or t

<220>
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 <222> (265)..(265)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (294)..(294)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (300)..(300)
 <223> n is a, c, g, or t

<220>
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 <222> (312)..(312)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (326)..(328)
 <223> n is a, c, g, or t

<220>
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 <222> (331)..(331)
 <223> n is a, c, g, or t

<220>
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 <222> (333)..(334)
 <223> n is a, c, g, or t

<220>
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 <222> (340)..(340)
 <223> n is a, c, g, or t

<220>
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 <222> (345)..(345)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (348)..(349)

<223> n is a, c, g, or t

<400> 86

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gctccaatgg cggcgaagga accgatgcgc gtgctcgtca ccggcgccgc aggacaaatt 120

ggatatgctc ttgttccgat gattgctagg ggaattatgc ttggtgcgga ccagcctgtt 180

attctgcata tgcaggatat tccaccagct gctgaagctc ttaatggtgt taagatggag 240

ttggntgatg ccgcatttcc acttntcaag ggagttgntg caacaactga tgtngttgan 300

gcttgactg gngtgaatgt tgcggnnntg ncnngcccan gtaanatnn 349

<210> 87

<211> 605

<212> DNA

<213> Lolium perenne

<220>

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<222> (1)..(1)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (32)..(32)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (499)..(499)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (522)..(522)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (531)..(531)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (559)..(559)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (567)..(567)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (572)..(572)

<223> n is a, c, g, or t

<220>

<221> misc_feature
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 <223> n is a, c, g, or t

<220>
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 <222> (596)..(596)
 <223> n is a, c, g, or t

<220>
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 <222> (598)..(598)
 <223> n is a, c, g, or t

<220>
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 <222> (600)..(600)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (602)..(602)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (605)..(605)
 <223> n is a, c, g, or t

<400> 87
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 ggatatgctc ttgttccgat gattgctagg ggaattatgc ttggtgcgga ccagcccgtt 180
 attctgcata tgctggatat tccaccagct gctgaagctc ttaatggtgt taagatggag 240
 ttggttgatg ccgcatttcc acttctcaag ggagttgttg caacaactga tgttgttgag 300
 gcttgcactg gtgtgaatgt tgcggttatg gttggtggat tccccaggaa ggagggaatg 360
 gaaaggaagg atgttatgtc taagaatgtt tcaatctaca aatctcaagc atctgccctt 420
 gaagcccatg cagccccgaa ttgcaagggt ctggttggtg ccaatccagc aaacaccaat 480
 gctcttatct taaaggagnt tgctccatct attcctgaga anaacatcag ntgtttgacc 540
 cgcctagacc ataacaggnc actcggncag anctctgaga gacntgatgc ccaagntngn 600
 gntgn 605

<210> 88
 <211> 685
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (1)..(1)
 <223> n is a, c, g, or t

<400> 88
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 ctccaatggc ggcgaaggaa ccgatgcgcg tgctcgtcac cggcgccgca ggacaaattg 120

gatatgctct	tggtccgatg	attgctaggg	gaattatgct	tggtgcggaac	cagcctgtta	180
ttctgcatat	gctggatatt	ccaccagctg	ctgaagctct	taatggtggt	aagatggagt	240
tggttgatgc	cgcatttcca	cttctcaagg	gagttgttgc	aacaactgat	gttgttgagg	300
cttgactg	tgtgaatggt	gcgggttatg	ttggtggatt	cccaggaag	gagggaaatg	360
aaaggaagga	tggtatgtct	agaatgttt	caatctacaa	atctcaagca	tctgcccttg	420
aagcccatgc	agccccgaat	tgcaagggtc	tggtgttgc	caatccagca	aacaccaatg	480
ctcttatctt	aaaggagttt	gctccatcta	ttctgagaa	gaacatcagt	tgtttgacct	540
gcctagacca	taacagggca	cttggtcaga	tctctgagag	acttgatgtc	caagttagt	600
atgtgaagaa	tggtatcatc	tgggcaaata	actcttcag	tcagtaccct	gatgtgaacc	660
acgccaccgt	gaagacttcc	agtg				685

<210> 89
 <211> 763
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> n is a, c, g, or t

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ggatatgctc	ttgttccgat	gattgctagg ggaattatgc ttggtgcgga ccagcctgtt 180
attctgcata	tgctggatat	tccaccagct gctgaagctc ttaatggtgt taagatggag 240
ttggttgatg	ccgcatttcc	acttctcaag ggagttgttg caacaactga tgttgttgag 300
gcttgactg	gtgtgaatgt	tgcggttatg gttggtggat tcccaggaa ggagggaaatg 360
gaaaggaagg	atgttatgtc	taagaatggt tcaatctaca aatctcaagc atctgccctt 420
gaagcccatg	cagccccgaa	ttgcaagggt ctggttggtg ccaatccagc aaacaccaat 480
gctcttatct	taaaggagtt	tgctccatct attcctgaga agaacatcag ttgtttgacc 540
cgcttagacc	ataacagggc	acttggtcag atctctgaga gacttgatgt ccaagttagt 600
gatgtgaaga	atgttatcat	ctggggcaat cactcttcca gtcagtacct tgatgtgaac 660
cacgccaccg	tgaagacttc	cagtggcgag aagcctgttc gcgaacttgt taaagacgat 720
gaatggctaa	atgcagggtt	cattgccact gtccagcagc gtg 763

<210> 90
 <211> 790
 <212> DNA
 <213> *Lolium perenne*

<220>

<221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<400> 90
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 ctccaatggc ggcgaaggaa ccgatgcgcg tgctcgtcac cggcgccgca ggacaaattg 120
 gatatgctct tgttccgatg attgctaggg gaattatgct tggtgccggac cagcctgtta 180
 ttctgcatat gctggatatt ccaccagctg ctgaagctct taatgggtgtt aagatggagt 240
 tggttgatgc cgcatttcca cttctcaagg gagttgttgc aacaactgat gttgttgagg 300
 cttgcactgg tgtgaatgtt gcggttatgg ttggtggatt ccccaggaag gagggaaatgg 360
 aaaggaagga tggtatgtct aagaatgttt caatctacaa atctcaagca tctgcccttg 420
 aagcccatgc agccccgaat tgcaaggttc tggttgttgc caatccagca aacaccaatg 480
 ctcttatctt aaaggagttt gctccatcta ttcctgagaa gaacatcagt tgtttgaccc 540
 gcctagacca taacagggca cttggtcaga tctctgagag acttgatgtc caagttagtg 600
 atgtgaagaa tggtatcatc tggggcaatc actcttccag tcagtaccct gatgtgaacc 660
 acgccaccgt gaagacttcc agtggcgaga agcctgttcg cgaacttggt aaagacgatg 720
 aatggctaaa tgcagggttc attgccactg tccagcagcg tggtgctgca atcatcaaag 780
 cgaggaagct 790

<210> 91
 <211> 690
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (678)..(678)
 <223> n is a, c, g, or t

<400> 91
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 atatgctctt gttccgatga ttgctagggg aattatgctt ggtgcggacc agcctgttat 180
 tctgcatatg ctggatattc caccagctgc tgaagctctt aatgggtgtta agatggagt 240
 ggttgatgcc gcatttccac ttctcaaggg agttgttgca acaactgatg ttgttgaggc 300
 ttgcactggt gtgaatgttg cgggttatgg ttggtggattc cccaggaagg agggaaatgga 360
 aaggaaggat gttatgtcta agaattgttc aatctacaaa tctcaagcat ctgcccttga 420
 agcccatgca gccccgaatt gcaaggttct ggttgttgcc aatccagcaa acaccaatgc 480
 tcttatctta aaggagtttg ctccatctat tctgagaag aacatcagtt gtttgacccg 540
 cctagaccat aacagggcac tcggtcagat ctctgagaga cttgatgtcc aagttagtga 600
 tgtgaagaat gttatcatct ggggtaatca ctcttccagt caataccctg atgtgaacca 660

cgccaccgtg aagacttnca gtggcgagaa

690

<210> 92
 <211> 700
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (679)..(679)
 <223> n is a, c, g, or t

<400> 92
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 gatatgctct tgttccgatg attgctaggg gaattatgct tggcgcgac cagcctgtta 180
 ttctgcatat gctggatatt ccaccagctg ctgaagctct taatggtgtt aagatggagt 240
 tggttgatgc cgcatttcca cttctcaagg gagttgttgc aacaactgat gttgttgagg 300
 cttgcactgg tgtgaatgtt gcggttatgg ttggtggatt ccccaggaag gagggaatgg 360
 aaaggaagga tgttatgtct aagaatgttt caatctacaa atctcaagca tctgcccttg 420
 aagcccatgc agccccgaat tgcaaggttc tggttgttgc caatccagca aacaccaatg 480
 ctcttatctt aaaggagttt gctccatcta ttcctgagaa gaacatcagt tgtttgacct 540
 gcctagacca taacagggca ctcggtcaga tctctgagag acttgatgtc caagttagt 600
 atgtgaagaa tgttatcatc tggggtaatc actcttccag tcaataccct gatgtgaacc 660
 acgccaccgt gaagacttnc agtggcgaga agcctgttcg 700

<210> 93
 <211> 679
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (515)..(515)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (524)..(524)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
 <221> misc_feature

<222> (575)..(575)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (596)..(596)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (617)..(617)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (627)..(627)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (631)..(631)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (643)..(643)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (660)..(660)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (671)..(671)
 <223> n is a, c, g, or t

<400> 93
 tcccgttgct gtcgcctcct cccgaccact ctccccatcc ccgaactcca gaaccggctc 60
 caatggcggc gaaggaaccg atgcgcgtgc tcgtcaccgg cgccgcagga caaattggat 120
 atgctcttgt tccgatgatt gctaggggaa ttatgcttgg tgcggaccag cctgttattc 180
 tgcataatgct ggatattcca ccagctgctg aagctcttaa tgggtgtaag atggagtggg 240
 ttgatgccgc atttccactt ctcaaggagg ttgttgcaac aactgatgtt gttgaggctt 300
 gcactgggtgt gaatgtttgcg gttatgggtg gtggattccc caggaaggag ggaatggaaa 360
 ggaaggatgt tatgtctaaa aatgtttcaa tctacaaatc tcaagcatct gcccttgaag 420
 cccatgcagc cccgaattgc aaggttcttg ttgttgccaa tccagcaaac accaatgctt 480
 ttatcttaaa ggagtttgct ccatctattc ctganaagaa catnanttgt ttgacccgcc 540
 taaaccataa cagggcactt ggctcagatct ntganagact tgatggccaa gttagnatg 600
 tgaaaaatgt tatcatntgg ggcaatnact nttccagtca gtnccctgat gtgaaccacn 660
 ccccccggaaa nacttccag 679

<210> 94
 <211> 676
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (27)..(27)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (676)..(676)
 <223> n is a, c, g, or t

<400> 94
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 ggcggcgaag gaaccgatgc gcgtgctcgt caccggcgcc gcaggacaaa ttggatatgc 120
 tcttgttccg atgattgcta ggggaattat gcttggtgcg gaccagcctg ttattctgca 180
 tatgctggat attccaccag ctgctgaagc tcttaatggt gttaagatgg agttggttga 240
 tgccgcattt ccacttctca agggagttgt tgcaacaact gatgttggtg aggcttgcac 300
 tgggtgtgaat gttgcggtta tgggttggtgg attccccagg aaggagggaa tggaaaggaa 360
 ggatgttatg tctaagaatg tttcaatcta caaatctcaa gtatctgccc ttgaagccca 420
 tgagccccg aattgcaagg ttctggttgt tgccaatcca gcaaacacca atgctcttat 480
 cttaaaggag ttgctccat ctattcctga gaagaacatc agttgtttga cccgcctaga 540
 ccataacagg gcacttggtc agatctctga gagacttgat gtccaagtta gtgatgtgaa 600
 gaatgttatc atctggggca atcactcttc cagtcagtac cctgatgtga accacgccac 660
 cgtgaagact tccagn 676

<210> 95
 <211> 786
 <212> DNA
 <213> Lolium perenne

<400> 95
 ccgttgcgtc cgcctcctcc cgaaccactc tccccatccc cgaactccag aaccggctcc 60
 aatggcggcg aaggaaccga tgcgcgtgct cgtcaccggc gccgcaggac aaattggata 120
 tgctcttggt ccgatgattg ctaggggaat tatgcttggt gcggaccagc ctgttattct 180
 gcatatgctg gatattccac cagctgctga agctcttaat ggtgttaaga tggagttggt 240
 tgatgccgca tttccacttc tcaagggagt tgttgcaaca actgatgttg ttgaggcttg 300
 cactggtgtg aatgttgcgg ttatgggttg tggattcccc aggaaggagg gaatggaaa 360
 gaaggatgtt atgtctaaga atgtttcaat ctacaaatct caagcatctg cccttgaagc 420
 ccatgcagcc ccgaattgca aggttctggt tgttgccaat ccagcaaaca ccaatgctct 480
 tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttatt tgacccgcct 540
 agaccataac agggcacttg gtcagatctc tgagagactt gatgtccaag ttagtgaatg 600
 gaagaatgtt atcatctggg gcaatcactc ttccagtcag taccctgatg tgaaccacgc 660
 caccgtgaag acttccagtg gcgagaagcc tgttcgcgaa cttgttaaag acgatgaatg 720

gctaaatgca gggttcattg ccaactgtcca gcagcgtggt gctgcaatca tcaaagcgag 780
gaagct 786

<210> 96
<211> 772
<212> DNA
<213> *Lolium perenne*

<220>
<221> misc_feature
<222> (29)..(29)
<223> n is a, c, g, or t

<400> 96
ggaccctctc cccatccccg aactccagna ccggctccaa tggcggcgaa ggaaccgatg 60
cgcgtgctcg tcaccggcgc cgcaggacaa attggatatg ctcttgttcc gatgattgct 120
aggggaatta tgcttggtgc ggaccagcct gttattctgc atatgctgga tattccacca 180
gctgctgaag ctcttaaatgg tgtaaatgatg gagttgggtg atgccgcatt tccacttctc 240
aaggggagttg ttgcaacaac tgatgttggt gaggcttgca ctggtgtgaa tgttgcgggt 300
atggttggtg gatccccag gaaggagggg atggaaagga aggatgttat gtctaagaat 360
gtttcaatct acaaattctca agcatctgcc cttgaagccc atgcagcccc gaattgcaag 420
gttctgggtg ttgccaatcc agcaaacacc aatgctctta tcttaaagga gtttgctcca 480
tctattcctg agaagaacat cagttgtttg acccgcttag accataacag ggcacttggt 540
cagatctctg agagacttga tgtccaagtt agtgatgtga agaattgttat catctggggc 600
aatcactctt ccagtcagta ccctgatgtg aaccacgcca ccgtgaggac ttccagtggc 660
gagaagcctg ttcgcgaact tgtaaaagac gatgaatggc taaatgcagg gttcattgcc 720
actgtccagc agcgtgggtg tgcaatcatc aaagcgagga agctctccag tg 772

<210> 97
<211> 676
<212> DNA
<213> *Lolium perenne*

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (7)..(7)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (14)..(14)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (36)..(36)

<223> n is a, c, g, or t

<400> 97

nccccgnant ccanaccggc tccaaggcgg cgaagnaacc gagcgcgtgc tcgtcaccgg	60
cgccgcagga caaattggat atgctcttgt tccgatgatt gctaggggaa ttatgcttgg	120
tgccgaccag cctgttattc tgcataatgct ggatattcca ccagctgctg aagctcttaa	180
tggtgttaag atggagttgg ttgatgccgc atttccactt ctcaaggagg ttgttgcaac	240
aactgatgtt gttgaggctt gcaactggtg gaatgttgcg gttatggttg gtggattccc	300
caggaaggag ggaatggaaa ggaaggatgt tatgtctaag aatgtttcaa tctacaaatc	360
tcaagcatct gcccttgaag cccatgcagc cccgaattgt aagggttctgg ttgttgccaa	420
tccagcaaac accaatgctc ttatcttaaa ggagtttgct ccactctattc ctgagaagaa	480
catcagttgt ttgacccgcc tagaccataa cagggcactc ggtcagatct ctgagagact	540
tgatgtccaa gttagtgtg tgaagaatgt tatcatctgg ggtaatcact cttccagtca	600
ataccctgat gtgaaccacg ccaccgtgaa gacttccagt ggcgagaagc ctgttcgcga	660
acttggttaa gacgat	676

<210> 98

<211> 763

<212> DNA

<213> *Lolium perenne*

<220>

<221> misc_feature

<222> (36)..(36)

<223> n is a, c, g, or t

<400> 98

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atgattgcta ggggaattat gcttggtgcg gaccagcctg ttattctgca tatgctggat	120
attccaccag ctgctgaagc tcttaatggt gttaatggtg agttggttga tgccgcattt	180
ccacttctca agggagttgt tgcaacaact gatgttggtg aggcttgac tggtgtgaat	240
gttgcggtta tggttggtg attccccagg aaggaggga tggaaaggaa ggatgttatg	300
tctaagaatg tttcaatcta caaatctcaa gcatctgccc ttgaagccca tgcagccccg	360
aattgcaagg ttctggttgt tgccaatcca gcaaaccaca atgctcttat cttaaaggag	420
tttgctccat ctattcctga gaagaacatc agttgtttga cccgcctaga ccataacagg	480
gcacttggtc agatctctga gagacttgat gtccaagtta gtgatgtgaa gaatgttatc	540
atctggggca atcactcttc cagtcagtac cctgatgtga accacgccac cgtgaagact	600
tccagtggcg agaagcctgt tcgcgaactt gttaaagacg atgaatggct aaatgcaggg	660
ttcattgcca ctgtccagca gcgtggtgct gcaatcatca aagcgaggaa gctctccagt	720

gctctctctg ctgccagctc tgcttgtgac cacatccgtg att

763

<210> 99
<211> 513
<212> DNA
<213> Lolium perenne

<220>
<221> misc_feature
<222> (435)..(435)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (453)..(453)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (458)..(458)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (469)..(469)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (472)..(472)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (482)..(482)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (485)..(486)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (488)..(488)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (491)..(491)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (500)..(501)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (503)..(503)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (506)..(506)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (511)..(511)

<223> n is a, c, g, or t

<400> 99

tatgcttggt gcggccagcc tgttattctg catatgctgg atattccacc agctgctgaa 60

gctcttaatg gtgttaagat ggagttgggt gatgccgcat ttccacttct caagggagtt 120

gttgcaacaa ctgatgttgt tgaggcttgc actggtgtga atgttgcggt tatggttggt 180

ggattcccca ggaaggagg agtggaagg aaggatgtta tgtctaagaa tgtttcaatc 240

tacaaatctc aagcatctgc cttgaagcc catgcagccc cgaattgcaa ggttctgggt 300

gttgccaatc cagcaaacac caatgctctt atcttaaagg agtttgctcc atctattcct 360

gagaagaaca tcagttgttt gacccgccta gaccataaca gggcacttgg tcagatctct 420

gagagacttg atgtncaaagt tagtgatgtg aanaatgnta tcatctggnc anctcactct 480

tncanncntt nccctgatgn nanccncgcc ncg 513

<210> 100

<211> 664

<212> DNA

<213> Lolium perenne

<220>

<221> misc_feature

<222> (2)..(2)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (83)..(83)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (85)..(86)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (241)..(241)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (534)..(534)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (570)..(570)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (576)..(576)

<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (605)..(605)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (610)..(610)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (620)..(620)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (640)..(640)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (650)..(650)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (653)..(653)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (657)..(657)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (660)..(660)
 <223> n is a, c, g, or t

<400> 100
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 gtttcaatct acaaatctca agngnntgcc cttgaagccc atgcagcccc gaattgcaag 120
 gttctggttg ttgccaatcc agcaaacacc aatgctctta tcttaaagga gtttgctcca 180
 tctattcctg agaagaacat cagttgtttg accgcctag accataacag ggcacttggt 240
 nagatctctg agagacttga tgtccaagtt agtgatgtga agaattgttat catctggggc 300
 aatcactctt ccagtcagta ccctgatgtg aaccacgcca ccgtgaagac ttccagtggc 360
 gagaagcctg ttcgcgaact tgttaaagac gatgaatggc taaatgcagg gttcattgcc 420
 actgtccagc agcgtggtgc tgcaatcatc aaagcgagga agctttccag tgctcttttt 480
 gctgccagct ctgcttgtga ccacatccgg gattgggttc tcggaacccc tganggaaca 540
 tttgtttcca tgggtgtgta ttctgatggn tatacngggt gcctgggtggg cttatctact 600
 ccttnccagn aacttgctgn ggggggggaat ggacaattgn tcaaaggctn ccnatchn 660
 agtt 664

<210> 101
 <211> 734

<212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (722)..(722)
 <223> n is a, c, g, or t

<400> 101
 taagcatctg cccttgaagc ccatgcagcc ccgaattgca aggttctggt tgttgccaat 60
 ccagcaaaca ccaatgctct tatcttaaag gagtttgctc catctattcc tgagaagaac 120
 atcagttggt tgacccgcct agaccataac agggcactcg gtcagatctc tgagagactt 180
 gatgtccaag ttagtgatgt gaagaatggt atcatctggg gtaatcactc ttccagtcaa 240
 taccctgatg tgaaccacgc caccgtgaag acttccagtg gcgagaagcc tgttcgcgaa 300
 cttgttaaag acgatgaatg gctaaatgca ggggttcattg cactgtcca gcagcgtggt 360
 gctgcaatca tcaaagcgag gaagctctcc agtgctctct ctgctgccag ctctgcttgt 420
 gaccacatcc gtgattgggt tcttgaacc cctgagggaa catttgttc catgggtgtg 480
 tattctgatg gttcatcagg tgtgcctgct gggcttatct actccttccc agtaacttgc 540
 tgcggtggtg aatggacaat tgttcaaggg ctcccgatcg acgagttctc aagaaagaag 600
 atggatgcca cagcccagga gctctcggag gagaaggctc tcgcctactc gtgcctcgag 660
 taactgcata ccagggagca gctgccgctc tgatgttttg aataaaagga acattttggc 720
 tncatgaaac tcat 734

<210> 102
 <211> 705
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (456)..(456)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (608)..(608)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (689)..(689)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (698)..(698)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (701)..(701)
 <223> n is a, c, g, or t

<400> 102
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 tatcttaaag gagtttgctc catctattcc tgagaagaac atcagttggt tgacccgcct 120
 agaccataac agggcacttg gtcagatctc tgagagactt gatgtccaag ttagtgatgt 180
 gaagaatggt atcatctggg gcaatcactc ttccagtcag taccctgatg tgaaccacgc 240
 caccgtgaag acttccagt gcgagaagcc tgttcgcgaa cttgttaaag acgatgaatg 300
 gctaaatgca gggttcattg ccaactgtcca gcagcgtggg gctgcaatca tcaaagcgag 360
 gaagctctcc agtgctctct ctgctgccag ctctgcttgt gaccacatcc gtgattgggt 420
 tctcggaacc cctgagggaa catttggttc catggntgtg tattctgatg gttcatacgg 480
 tgtgctgtct gggcttatct actccttccc agtaacttgc tgcggtgggtg aatggacaat 540
 tgttcaaggg ctcccgatcg acgagttctc aagaaagaag atggatgcca cagcccagga 600
 gctctcgnag gagaaggctc tcgcctactc gtgcctcgag taactgcata ccagggagca 660
 gctgtcgtct tgatgttttg aataaaagna cattttgnct ncatg 705

<210> 103
 <211> 667
 <212> DNA
 <213> *Lolium perenne*

<400> 103
 tgcagccccg attgcaagggt tctgggttgtt gccaatccag caaacaccaa tgctcttatc 60
 ttaaaggagt ttgtccatc tattcctgag aagaacatca gttgtttgac ccgcctagac 120
 cataacaggg cacttggtca gatctctgag agacttgatg tccaagttag tgatgtgaag 180
 aatgttatca tctggggcaa tcaactcttc agtcagtacc ctgatgtgaa ccacgccacc 240
 gtgaagactt ccagtggcga gaagcctgtt cgcgaacttg ttaaagacga tgaatggcta 300
 aatgcagggt tcattgccac tgtccagcag cgtgggtgctg caatcatcaa agcgaggaag 360
 ctctccagtg ctctctctgc tgccagctct gcttgtgacc acatccgtga ttgggttctc 420
 ggaaccctg agggaaacatt tgtttccatg ggtgtgtatt ctgatggttc atacggtgtg 480
 cctgctgggc ttatctactc cttcccagta acttgctgcg gtgggtgaatg gacaattggt 540
 caagggtcc cgatcgacga gttctcaaga aagaagatgg atgccacagc ccaggagctc 600
 tcggaggaga aggctctcgc ctactcgtgc ctcgagtaac tgcataccag ggagcagctg 660
 ccgctct 667

<210> 104

<211> 748
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (28)..(28)
 <223> n is a, c, g, or t

<400> 104
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 cgagaagcct gttcgcgaac ttgttaaaga cgatgaatgg ctaaatgcag ggttcattgc 120
 cactgtccag cagcgtggtg ctgcaatcat caaagcgagg aagctctcca gtgctctctc 180
 tgctgccagc tctgcttggt accacatccg tgattggggt ctcggaaccc ctgaggggaa 240
 atttgtttcc atgggtgtgt attctgatgg ttcatacggg gtgcctgctg ggcttatcta 300
 ctccttccca gtaacttgct gcgggtggtga atggacaatt gttcaagggc tcccgatcga 360
 cgagtttctca agaaagaaga tggatgccac agcccaggag ctctcggagg agaaggctct 420
 cgcctactcg tgcctcgagt aactgcatac caggagcag ctgccgctct gatgttttga 480
 ataaaaggaa ctttttggct ccatgaaact catctccact cagaacagtt gcacatcgcg 540
 gtgccttttag ctggtttttc cagtgtgtat gaatgaggct tttgtagctc tattttcgcc 600
 tgatgattta caggacagga tattggcagg aagattggaa caatttgacg tctgattaaa 660
 accaacctct tattattccc gtgtgtatga atgaggcttt ttagctcta ttttcgcctg 720
 atgatttaca ggccatgata ttggcagg 748

<210> 105
 <211> 646
 <212> DNA
 <213> *Lolium perenne*

<400> 105
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 acttgtaaag gacgatgaat ggctaaatgc agggttcatt gccactgtcc agcagcgtgg 120
 tgctgcaatc atcaaagcga ggaagctctc cagtgtctct tctgctgcca gctctgcttg 180
 tgaccacatc cgtgattggg ttctcgggaa ccctgagggg acatttggtt ccatgggtgt 240
 gtattctgat gggtcatagc gtgtgcctgc tgggcttatc tactccttcc cagtaacttg 300
 ctgcggtggt gaatggacaa ttgttcaagg gctcccgggc gacgagttct caagaaagaa 360
 gatggatgcc acagcccagg agctctcgga ggagaaggct cttgcctact cgtgcctcga 420
 gtaactgcat accaggagc agctgccgct ctgatgtttt gaataaaagg aacattttgg 480
 ctccatgaaa ctcatctcca ctgagaacag ttgcacatcg cgggtgccttt agctggtttt 540
 tccagtgtgt atgaatgagg cttttgtagc tctattttcg cctgatgatt tacaggacag 600
 gatattggca ggaagattgg aacaatttga cgtctgatta aaacca 646

<210> 106

<211> 750
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (82)..(82)
 <223> n is a, c, g, or t

<400> 106
 ttcngtggca agagcctgtt cgcgacttgt taaagacgat gaatggctaa atgcaggggt 60
 cattgccact gtccagcagc gnggtgctgc aatcatcaaa gcgaggaagc tctccagtgc 120
 tctctctgct gccagctctg cttgtgacca catccgtgat tgggttctcg gaaccctga 180
 gggaacattt gtttccatgg gtgtgtattc tgatggttca tacgggtgtgc ctgctgggct 240
 tatctactcc ttcccagtaa cttgctgcgg tggatgaatgg acaattgttc aagggctccc 300
 gatcgacgag ttctcaagaa agaagatgga tgccacagcc caggagctct cggaggagaa 360
 ggctctcgcc tactcgtgcc tcgagtaact gcataccagg gagcagctgc cgctctgatg 420
 ttttgaataa aaggaacatt ttggctccat gaaactcatc tccactcaga acagttgcac 480
 atcgcggtgc cttcagctgg tttttccagt gtgtatgaat gaggcttttg tagctctatt 540
 ttcgcctgat gatttacagg acaggatatt ggcaggaaga ttggaacaat ttgacgtctg 600
 attaaaacca acctcttatt attcctgtgt gtatgaatga ggcttttgta gctctatttt 660
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 ctgctgccag ctctgcttgt gaccacatcc gtgattgggt tctcggaaacc cctgagggaa 180
 catttgtttc catgggtgtg tattctgatg gttcatacgg tgtgcctgct gggcttatct 240
 actccttccc agtaacttgc tgcggtgggt aatggacaat tgttcaaggg ctcccgatcg 300
 acgagtcttc aagaaagaag atggatgcca cagcccagga gctctcggag gagaaggctc 360
 tcgcctactc gtgcctcgag taactgcata ccaggagagca gctgccgctc tgatgttttg 420
 aataaaagga acattttggc tccatgaaac tcatctccac tcagaacagt tgcacatcgc 480
 ggtgccttta gctggttttt ccagtgtgta tgaatgaggc ttttgtagcg ctattttcgc 540
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616

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 gatgttttga ataaaaggaa cattttggct ccatgaaact catctccact cagaacagtt 180
 gcacatcgcg gtgccttttag ctggtttttc cagtgtgtat gantgaggct tttgtagctc 240
 tattttcgcc tgatgattta caggacagga tattggcagg aagattggaa caatttgacg 300
 tctgattaaa accaacctct tattattcct gtgtgtatga atgaggcttt ttagtagctcta 360
 ttttcgcctg atgatttaca ggacatgata ttggcaggag gattggaaca annanann 418

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 tgccgctctg atgttttgaa taaaaggaa attttggctc catgaaactc atctccactc 120
 agaacagttg cacatcgcgg tgccttttagc tggtttttcc agtgtgtatg aatgaggctt 180
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 tgaggctttt gtagctctat tttcgctga tgatttacag gccacgatat tggcaggagg 180
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Val Asn Ser Thr Val Pro Ile Ala Ala Glu Val Phe Lys Lys Ala Gly
 20 25 30

Thr Tyr Asn Xaa Lys Arg Leu Leu Gly Val Asp Asn Xaa Xaa Met Xaa
 35 40 45

Xaa Thr Asp Xaa Ala Leu Xaa Xaa Arg Gly
 50 55

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accaaggaac catggcagca cgagctacag tggcctaaag gcatcatcgt cgtcgcacag 180
cttcgaatca ggaacatcat tcctgggcaa gaccgcctcc ctccgggcaa ctgttaccac 240
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tcctctgggtc tcggagctgc gcctgtatga tatcgcgaaat gtcaagggcg tcgctgcaga 420
tctcagccac tgcaacacgc ctgctcaggt catggacttc actggccccg cagagctagc 480
agagtgccttg aaagggtgtg atgttgctgt catccctgcg ggtgtcccaa ggaagccagg 540
catgaccctgt gatgaccttt ttaacatnaa tgcgggaatc gncaagtcgc ttattgagggc 600
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Pro Pro Lys Leu Asp Met Ala Ser Ala Val Thr Ile Ser Ser Val Ser
20          25          30

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Ala Gln Ala Ala Leu Val Ser Lys Pro Arg Asn His Gly Ser Thr Ser
35          40          45

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Tyr Ser Gly Leu Lys Ala Ser Ser Ser Ser Ile Ser Phe Glu Ser Gly
50          55          60

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Thr Ser Phe Leu Gly Lys Thr Ala Ser Leu Arg Ala Thr Val Thr Thr
65          70          75          80

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Arg Val Val Pro Lys Ala Lys Ser Gly Ser Gln Ile Ser Pro Gln Ala
85 90 95

Ser Tyr Lys Val Ala Val Leu Gly Ala Ala Gly Gly Ile Gly Gln Pro
100 105 110

Leu Gly Leu Leu Ile Lys Met Ser Pro Leu Val Ser Glu Leu Arg Leu
115 120 125

Tyr Asp Ile Ala Asn Val Lys Gly Val Ala Ala Asp Leu Ser His Cys
130 135 140

Asn Thr Pro Ala Gln Val Met Asp Phe Thr Gly Pro Ala Glu Leu Ala
145 150 155 160

Glu Cys Leu Lys Gly Val Asp Val Val Val Ile Pro Ala Gly Val Pro
165 170 175

Arg Lys Pro Gly Met Thr Arg Asp Asp Leu Phe Asn Xaa Asn Ala Gly
180 185 190

Ile Xaa Lys Ser Leu Ile Glu Ala Val Ala Asp Asn Cys Pro Glu Gly
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Leu Ile His Ile Ile Asn Asn Pro Gly Gln Thr Pro Pro
210 215 220

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 aagttggaga tggcatcagc tgttaccatc agctcagtc ggcgcagggc cgctttggtc 180
 tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc taaaggcatc atcatcgtcg 240
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Gln	Phe	Pro 35	Ser	Ala	His	Gln	Pro 40	Lys	Leu	Glu	Met	Ala 45	Ser	Ala	Val
Thr	Ile 50	Ser	Ser	Val	Ser	Ala 55	Gln	Ala	Ala	Leu	Val 60	Ser	Lys	Pro	Arg
Asn 65	His	Gly	Ser	Thr	Ser 70	Tyr	Ser	Gly	Leu	Lys 75	Ala	Ser	Ser	Ser	Ser 80
Ile	Ser	Phe	Glu	Ser 85	Gly	Thr	Ser	Phe	Leu 90	Gly	Lys	Thr	Ala	Ser 95	Leu
Arg	Ala	Thr	Ile 100	Thr	Ser	Arg	Ile	Val 105	Pro	Lys	Ala	Lys	Ser 110	Gly	Ser
Gln	Ile	Ser 115	Pro	Gln	Ala	Ser	Tyr 120	Lys	Val	Ala	Val	Leu 125	Gly	Ala	Ala
Gly	Gly 130	Ile	Gly	Gln	Pro	Leu 135	Gly	Leu	Leu	Ile	Lys 140	Met	Ser	Pro	Leu
Val 145	Ser	Glu	Leu	Arg	Leu 150	Tyr	Asp	Ile	Ala	Asn 155	Val	Lys	Gly	Val	Ala 160
Ala	Asp	Leu	Ser	His 165	Cys	Asn	Thr	Pro	Ser 170	Gln	Val	Met	Asp	Phe 175	Thr
Gly	Pro	Ala	Glu 180	Leu	Ala	Asp	Cys	Leu 185	Lys	Gly	Val	Asp	Val 190	Val	Val
Ile	Pro	Ala 195	Gly	Val	Pro	Arg	Lys 200	Pro	Gly	Met	Thr	Arg 205	Asp	Asp	Leu
Phe	Asn 210	Ile	Asn	Ala	Gly	Ile 215	Val	Lys	Ser	Leu	Ile 220	Glu	Ala	Val	Ala
Asp 225	Asn	Cys	Pro	Glu	Ala 230	Phe	Ile	His	Ile	Ile 235	Ser	Asn	Pro	Val	Asn 240
Ser	Thr	Val	Pro	Ile 245	Ala	Ala	Glu	Ile	Leu 250	Lys	Gln	Lys	Gly	Val 255	Tyr
Asn	Pro	Lys	Lys 260	Leu	Phe	Gly	Val	Ser 265	Thr	Leu	Asp	Val	Val 270	Arg	Ala
Asn	Thr	Phe	Val	Ala	Gln	Lys	Lys	Asn	Leu	Ser	Leu	Ile	Asp	Val	Asp

275 280 285
 Val Pro Val Val Gly Gly His Ala Gly Ile Thr Ile Leu Pro Leu Leu
 290 295 300
 Ser Lys Thr Arg Pro Ser Val Ser Phe Thr Asp Glu Glu Thr Glu Gln
 305 310 315 320
 Leu Thr Lys Arg Ile Gln Asn Ala Gly Thr Glu Ala Val Glu Ala Lys
 325 330 335
 Ala Gly Ala Gly Ser Ala Thr Leu Ser Met Ala Tyr Ala Ala Ala Arg
 340 345 350
 Phe Val Glu Ser Ser Leu Arg Ala Met Ala Gly Asp Pro Asp Val Tyr
 355 360 365
 Glu Cys Thr Tyr Val Gln Ser Glu Leu Thr Glu Leu Pro Phe Phe Ala
 370 375 380
 Ser Arg Val Lys Leu Gly Lys Asp Xaa Val Glu Ser Ile Ile Ser Ser
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gaaaccaagg aatcatggca gcacaagcta cagtggccta aaggcatcat catcgtcgat 240
cagcttcgaa tcagggacat cattcctggg caagaccacc tctcttcggg cgactatcac 300
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agncatgacc cgtgatgacc tttttaacat caatgcgggc atcgnaagt cgcttattga 660
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gcaattccca tctgctcacc aaccgaagtt ggagatggca tcagctgtta ccatcagctc 120
agtcagcgcg caggccgctt tgggtctgaa accaaggaat catggcagca caagctacag 180
tggcctaaag gcatcatcat cgtcgatcag cttcgaatca gggacatcat tcctgggcaa 240
gaccgcctct cttcgggcca ctatcacctc aaggattgtg ccaaaggcaa agtctgggtc 300
tcagatatca cctcaggcct cgtacaaggt ggcggtgctt ggtgctgccg gtggcatcgg 360
tcaaccactg ggcctgctga tcaagatgtc tcctctggtc tcagagctgc gcctgtatga 420
tattgccaat gtcaagggag tcgctgcaga tctcagccac tgcaacacgc cttctcaggt 480

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catggacttc actggcccag cagaactagc tgactgcttg aaaggtgttg atgttgtcgt      540
catccctgcg ggtgtcccaa ggaagccagg catgacccgt gatgaccttt ttaacatcaa      600
tgcgggcatc gtcaagtcgc ttattgaggc tgttgacagac aactgcc                    647

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<210> 119
<211> 801
<212> DNA
<213> Lolium perenne

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<220>
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<223> n is a, c, g, or t

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<222> (34)..(35)
<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<400> 119
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cggtcagcgc gcagtccgct ctggtttcga aaccaaggaa tcatggcagc acgagcttcg      180
gtggcctaaa ggcatcatcg gcgtcgatca gctttgaatc agggacatcg ttcctgggca      240
agactgcctc cctccgggcg actggttacc caaggattgt gccaaaggca aagtctgggt      300
ctcagatatc gcctcaggca tcttacaagg tggcgggtgct tgggtgctgct ggtggcatcg      360
gccaaaccact gggcctgctg atcaagatgt ctctctagt ctcagagctg cgcctgtatg      420
atattgccaa tgtcaagggc gtcgtgcag atcttagcca ctgcaacacg ccttctcagg      480
tcatggactt cactggcccc gcggaactag ccgactgctt gaaaggtgtg gatgttgtcg      540
tcatccctgc ggggtgtcca aggaagcctg gcatgactcg tgatgacctt ttaacatca      600
atgcgggcat cgtcaagtcg cttatcgagg ctgttgacga caactgccct gaggccttca      660
tccatatcat cagcaaccgg gtcaactcca cggtgccgat tgctgctgag attctgaaac      720
agaagggcgt ctacaacccc aagaagctct tcgggggttn caccctggat gttgtcagag      780
ctaacacatt ttagctcan a                                                  801

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<210> 120
<211> 692
<212> DNA
<213> Lolium perenne

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<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (9)..(9)
 <223> n is a, c, g, or t

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 <222> (14)..(14)
 <223> n is a, c, g, or t

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 <222> (19)..(20)
 <223> n is a, c, g, or t

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 <222> (26)..(27)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <222> (686)..(686)
 <223> n is a, c, g, or t

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 caattcccat ctgctcacca acccaagttg gagatggcat cagctgttac catcagctca 120
 gtcagcgcgc aggccgcttt ggtctcgaaa ccaaggaatc atggcagcac aagctacagt 180
 ggcctaaagg catcatcatc gtcgatcagc ttcgaatcag ggacatcatt cctgggcaag 240
 accgcctctc ttcggggcgac tatcacctca aggattgtgc caaaggcaaa gtctgggtct 300
 cagatatcac ctccaggcctc gtacaagggtg gcggtgcttg gtgctgccgg tggcatcggg 360
 caaccactgg gcctgctgat caagatgtct cctctggtct cagagctgcg cctgtatgat 420
 attgccaatg tcaagggagt cgctgcagat ctccagccact gcaacacgcc ttctcagggtc 480
 atggacttca ctggcccagc agaactagct gactgcttga aagggtgttg tggtgtcgtc 540
 atccctgcgg gtgtctcaag gaagccaggc atgaccctgt atgacctttt taacatcaat 600
 gcgggcatcg tcaagtcgct tattgaggct gntgcagaca actgccctga ggccttcac 660
 catatcatca gcaacccggg caactncact gt 692

<210> 121

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<211> 695
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (20)..(20)
 <223> n is a, c, g, or t

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 <222> (26)..(27)
 <223> n is a, c, g, or t

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 <222> (29)..(29)
 <223> n is a, c, g, or t

<220>
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 <222> (34)..(34)
 <223> n is a, c, g, or t

<220>
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 <222> (687)..(687)
 <223> n is a, c, g, or t

<400> 121
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 gcaattccca tctgctcacc aacccaagtt ggagatggca tcagctgtta ccatcagctc 120
 agtcagcgcg caggccgctt tgggtctcgaa accaaggaat catggcagca caagctacag 180
 tggcctaaag gcatcatcat cgtcgatcag cttcgaatca gggacatcat tcctgggcaa 240
 gaccgcctct cttcggggcg ctatcacctc aaggattgtg ccaaaggcaa agtctgggtc 300
 tcagatatca cctcaggcct cgtacaaggt ggcggtgctt ggtgctgccg gtggcatcgg 360
 tcaaccactg ggcctgctga tcaagatgtc tcctctgggtc tcagagctgc gcctgtatga 420
 tattgccaat gtcaagggag tcgctgcaga tctcagccac tgcaacacgc cttctcaggt 480
 catggacttc actggccccag cagaactagc tgactgcttg aaagggtgtg atgttgctcg 540
 catccctgcg ggtgtcccaa ggaagccagg cacgaccctg gatgaccttt ttaacatcaa 600
 tgcgggcatc gtcaagtcgc ttattgaggc tgttgcagac aactgccctg aggccttcat 660
 ccatatcatc agcaacccgg tcaactncac tgtga 695

<210> 122
 <211> 403
 <212> DNA
 <213> Lolium perenne

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 <223> n is a, c, g, or t

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 <222> (10)..(10)
 <223> n is a, c, g, or t

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 <222> (32)..(33)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <222> (303)..(303)
 <223> n is a, c, g, or t

<220>
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 <222> (329)..(329)
 <223> n is a, c, g, or t

<220>
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 <222> (384)..(384)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (403)..(403)
 <223> n is a, c, g, or t

<400> 122
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 caattcccat ctgctcacca acccaagttg gacatggcat cagctgttac catcagttcg 120
 gtcagcgcgc agtccgctct ggtttcgaaa ccaaggaatc atggcagcac gagcttcggt 180
 ggcctaaagg catcatcggc gtcgatcagc tttgaatcag ggacatcggt cctgggcaag 240
 actgcctccc tccggggcgac tgttaccca aggattgngc caaaggcaaa gtctgggtct 300
 canatatcgc ctccaggcatc ttacaaggng gcggtgcttg gtgctgctgg tggcatcggt 360
 caaccactgg gcctgctgat caanatgtct cctctggtct can 403

<210> 123
 <211> 561
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <223> n is a, c, g, or t

<220>
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<222> (11)..(11)
 <223> n is a, c, g, or t

<220>
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 <222> (19)..(19)
 <223> n is a, c, g, or t

<220>
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 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
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 <222> (31)..(31)
 <223> n is a, c, g, or t

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 <222> (43)..(43)
 <223> n is a, c, g, or t

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 <222> (534)..(534)
 <223> n is a, c, g, or t

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 <222> (536)..(536)
 <223> n is a, c, g, or t

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 <222> (549)..(550)
 <223> n is a, c, g, or t

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 <221> misc_feature
 <222> (554)..(554)
 <223> n is a, c, g, or t

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 attcccatct gctcaccaac ccaagttgga gatggcatca gctgttacca tcagctcagt 120
 cagcgcgcag gccgctttgg tctcgaaacc aaggaatcat ggcagcaca gctacagtgg 180
 cctaaaggca tcatcatcgt cgatcagctt cgaatcaggg acatcattcc tgggcaagac 240
 cgcctctctt cgggcgacta tcacctcaag gattgtgcca aaggcaaagt ctgggtctca 300
 gatatcacct caggcctcgt acaagggtggc ggtgcttggt gctgccggtg gcatcgggtca 360
 accactgggc ctgctgatca agatgtctcc tctggtctca gagctgcgcc tgtatgatat 420
 tgccaatgtc aagggaagtcg ctgcagatct cagccactgg aacacgcctt ctcaggtcat 480
 ggacttgact ggcccagcag aactagctga ctgcttgaaa ggtgctgatg ttgncngcat 540
 ccctgcggnn gtcncaagga a 561

<210> 124
 <211> 659
 <212> DNA

<213> *Lolium perenne*

<220>
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<220>
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 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
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 <222> (19)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (24)..(26)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (31)..(31)
 <223> n is a, c, g, or t

<400> 124
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 aattcccatc tgctcaccaa cccaagttgg agatggcatc agctgttacc atcagctcag 120
 tcagcgcgca ggccgctttg gtctcgaaac caaggaatca tggcagcaca agctacagtg 180
 gcctaaaggc atcatcatcg tcgatcagct tcgaatcagg gacatcattc ctgggcaaga 240
 ccgcctctct tcgggcgact atcacctcaa ggattgtgcc aaaggcaaag cctgggtctc 300
 agatatcacc tcaggcctcg tacaagggtg cggtgcttgg tgctgccggt ggcacggtc 360
 aaccactggg cctgctgatc aagatgtctc ctctggtctc agagctgcg cgtgatgata 420
 ttgccaatgt caagggagtc gctgcagatc tcagccactg caacacgcct tctcaggtca 480
 tggacttcac tggcccagca gaactagctg actgcttgaa aggtgttgat gttgtcgtca 540
 tccctgcggg tgtccaagg aagccaggca tgaccctgta tgacctttt aacatcaatg 600
 cgggcatcgt caagtcgctt attgaggctg ttgcagacaa ctcccctgag gccttcac 659

<210> 125
 <211> 706
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(12)
 <223> n is a, c, g, or t

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 <222> (24)..(25)
 <223> n is a, c, g, or t

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 <222> (31)..(31)
 <223> n is a, c, g, or t

<220>
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 <222> (685)..(685)
 <223> n is a, c, g, or t

<400> 125
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 aattcccatc tgctcaccaa cccaagttgg agatggcatc agctgttacc atcagctcag 120
 tcagcgcgca ggccgctttg gtctcgaaac caaggaatca tggcagcaca agctacagtg 180
 gcctaaaggc atcatcatcg tcgatcagct tcgaatcagg gacatcattc ctgggcaaga 240
 ccgcctctct tcgggcgact atcacctcaa ggattgtgcc aaaggcaaag tctgggtctc 300
 agatatcacc tcaggcctcg tacaaggtgg cgggtgcttg tgctgccggt ggcacgcgtc 360
 aaccactggg cctgctgatc aagatgtctc ctctggtctc agagctgcmc ctgtatgata 420
 ttgccaatgt caaggggagtc gctgcagatc tcagccactg caacacgcct tctcagggtc 480
 tggacttcac tggcccagca gaactagctg gctgcttgaa aggtggtgat gttgtcgtca 540
 tccctgcggg tgtcccaagg aagccaggca tgacccgtga tgaccttttt aacatcaatg 600
 cgggcatcgt caagtcgctt attgaggctg ttgcagacaa ctgccctgag gccttcatcc 660
 atatcatcag caaccgggtc aactncactg tgccgattgc tgctga 706

<210> 126
 <211> 706
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(12)
 <223> n is a, c, g, or t

<220>
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 <222> (24)..(25)
 <223> n is a, c, g, or t

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<221> misc_feature
 <222> (31)..(31)
 <223> n is a, c, g, or t

<400> 126
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 attcccatct gctcaccaac ccaagttgga gatggcatca gctgttacca tcagctcagt 120
 cagcgcgcag gccgcttttg tctcgaaacc aaggaatcat ggcagcacia gctacagtgg 180
 cctaaaggca tcatcatcgt cgatcagctt cgaatcaggg acatcattcc tgggcaagac 240
 cgcctctctt cgggcgacta tcacctcaag gattgtgcc aaggcaaagt ctgggtctca 300
 gatatcacct caggcctcgt acaagggtggc ggtgcttggt gctgccggtg gcatcggtca 360
 accactgggc ctgctgatca agatgtctcc tctgggtctca gagctgcgcc tgtatgatat 420
 tgccaatgtc aaggggagtcg ctgcagatct cagccactgc aacacgcctt ctcaggtcat 480
 ggacttcact ggcccagcag aactagctga ctgcttgaaa ggtgttgatg ttgtcgtcat 540
 ccctgcgggg gtcccaagga agccaggcat gaccctgat gaccttttta acatcaatgc 600
 gggcatcgtc aagtcgctta ttgaggctgt tgcagacaac tgccctgagg ctttcatcca 660
 tatcatcagc aacccggtca actccactgt gccgattgct gctgaa 706

<210> 127
 <211> 802
 <212> DNA
 <213> Lolium perenne

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 <222> (11)..(11)
 <223> n is a, c, g, or t

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 <222> (30)..(30)
 <223> n is a, c, g, or t

<220>
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 <222> (89)..(89)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (242)..(242)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (726)..(726)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (798)..(798)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature

<222> (801)..(801)

<223> n is a, c, g, or t

<400> 127

cctcaaccaa naaaagaaaa gcagctcagn cgcaaggggc gagcccgggc gcacgagcaa	60
ttcccatctg ctcaccaacc caagttggnc atggcatcag ctgttaccat cagttcggtc	120
agcgcgcagt ccgctctggt ttcgaaacca aggaatcatg gcagcacgag cttcggtggc	180
ctaaaggcat catcggcgtc gatcagcttt gaatcaggga catcgttcct gggcaagact	240
gntccctcc gggcgactgt tacccaagg attgtgccaa aggcaaagtc tgggtctcag	300
atatcgctc aggcatttta caaggtggcg gtgcttggtg ctgctggtg catcgggtcaa	360
ccactgggccc tgctgatcaa gatgtctcct ctggtctcag agctgcgctt gtatgatatt	420
gccaatgtca agggcgctcgc tgcagatctt agccactgca acacgccttc tcagggtcatg	480
gacttcactg gccccgcgga actagccgac tgcttgaaag gtgtggatgt tgtcgtcatc	540
cctgcgggtg tccaaggaa gcctggcatg actcgtgatg acctttttaa catcaatgcg	600
ggcatcgtca agtcgcttat cgaggctggt gcagacaact gccctgaggc cttcatccat	660
atcatcagca acccgggtcaa ctccacgggt ccgattgctg ctgagattct gaaacagaag	720
ggcgtntaca accccaagaa gctcttcggg gtttccaccc tggatgttgt cagagctaac	780
acatttgtag ctcaaaaanaa na	802

<210> 128

<211> 691

<212> DNA

<213> Lolium perenne

<220>

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<222> (8)..(8)

<223> n is a, c, g, or t

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<221> misc_feature

<222> (10)..(10)

<223> n is a, c, g, or t

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<221> misc_feature

<222> (14)..(14)

<223> n is a, c, g, or t

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<222> (19)..(19)

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<222> (24)..(25)

<223> n is a, c, g, or t

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<221> misc_feature

<222> (31)..(32)

<223> n is a, c, g, or t

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 <222> (658)..(658)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (684)..(684)
 <223> n is a, c, g, or t

<400> 128
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 attcccatct gctcaccaac ccaagttggg catggcatca gctgttacca tcagctcagt 120
 cagcgcgcag gccgctttgg tctcgaaacc aaggaatcat ggcagcacia gctacagtgg 180
 cctaaaggca tcatcatcgt cgatcagctt cgaatcaggg acatcattcc tgggcaagac 240
 cgctctcttt cgggcgacta tcacctcaag gattgtgcc aaggcaaagt ctgggtctca 300
 gatatacct caggcctcgt acaaggtggc ggtgcttggg gctgccgggtg gcatcgggtca 360
 accactgggc ctgctgatca agatgtctcc tctgggtctca gagctgcgcc tgtatgatata 420
 tgccaatgtc aaggggagtcg ctgcagatct cagccactgc aacacgcctt ctcagggtcat 480
 ggacttcact ggcccagcag aactagctga ctgcttgaaa ggtgttgatg ttgtcgtcat 540
 ccctgcgggt gtcccaagga agccaggcat gaccctgtgat gaccttttta acatcaatgc 600
 gggcatcgtc aagtcgctta ttgaggctgt tgcagacaac tgccctgagg ctttcatnca 660
 tatcatcagc aaccgggtca actncactgt g 691

<210> 129
 <211> 705
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
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 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
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 <222> (24)..(24)
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<220>
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 <222> (30)..(30)
 <223> n is a, c, g, or t

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 <222> (36)..(36)
 <223> n is a, c, g, or t

<220>
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 <222> (217)..(217)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (629)..(629)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (683)..(683)
 <223> n is a, c, g, or t

<400> 129
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 agcgcgcagg ccgcttttggc ctcgaaacca aggaatcatg gcagcacaag ctacagtggc 180
 ctaaaggcat catcatcgtc gatcagcttc gaatcangga catcattcct gggcaagacc 240
 gcctctcttc gggcgactat cacctcaagg attgtgccaaggcaaagtc tgggtctcag 300
 atatcacctc aggccctcgta caaggtggcg gtgcttggtg ctgccgggtg catcgggtcaa 360
 ccactgggccc tgctgatcaa gatgtctcct ctggtctcag agctgcgctt gtatgatatt 420
 gccaatgtca agggagtcgc tgcagatctc agccactgca acacgccttc tcagggtcatg 480
 gacttcactg gccacgcaga actagctgac tgcttgaaag gtgttgatgt tgcgtcatc 540
 cctgcgggtg tctcaaggaa gccaggcatg acccgtgatg acctttttta catcaatgcg 600
 ggcacgtcga agtcgcttat tgaggctgnt gcagacaact gccctgaggg cttcatccat 660
 atcatcagca acccgggtcaa ctncactgtg ccgattgctg ctgag 705

<210> 130
 <211> 680
 <212> DNA
 <213> Lolium perenne

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <222> (21)..(22)
 <223> n is a, c, g, or t

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<221> misc_feature
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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <222> (680)..(680)
 <223> n is a, c, g, or t

<400> 130
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 tcccatctgc tcaccaaccc aagttggaga tggcatcagc tgttaccatc agttcagtca 120
 gcgcgcaggc cgctttgggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc 180
 taaaggcatc atcatcgtcg atcagcttcg aatcaggggac atcattcctg ggcaagaccg 240
 cctctcttcg ggcgactatc acctcaagga ttgtgccaaa ggcaaagtct gggcttcaga 300
 tatcacctca ggcctcgtac aaggtggcgg tgcttggtgc tgccggtggc atcggtcaac 360
 cactgggcct gctgatcaag atgtctcctc tgggtctcaga gctgcgcctg tatgatattg 420
 ccaatgtcaa gggagtcgct gcagatctca gccactgcaa cacgccttct cagggtcatgg 480
 acttcactgg cccagcagaa ctagctgact gcttgaaagg tggtgatggt gtcggtcatcc 540
 ctgcgggtgt cccaaggaag ccaggcatga cccgtgatga cctttttaac atcaatgcgg 600
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 tcatcagcaa cccggtcacn 680

<210> 131
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 <212> DNA
 <213> Lolium perenne

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 <223> n is a, c, g, or t

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 <222> (8)..(9)
 <223> n is a, c, g, or t

<220>
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 <222> (15)..(15)
 <223> n is a, c, g, or t

<220>
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 <222> (21)..(22)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature

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<222> (28)..(28)

<223> n is a, c, g, or t

<400> 131

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cccgctctgct caccaaccca agttggagat ggcatcagct gttaccatca gctcagtcag      120
cgcgcaggcc gctttggtct cgaaaccaag gaatcatggc agcacaagct acagtggcct      180
aaaggcatca tcatcgtcga tcagcttcga atcagggaca tcattcctgg gcaagaccgc      240
ctctcttcgg gcgactatca cctcaaggat tgtgccaaag gcaaagtctg ggtctcagat      300
atcacctcag gcctcgtaca aggtggcggt gcttgggtgct gccggtggca tcggtcaacc      360
actgggcctg ctgatcaaga tgtctcctct ggtctcagag ctgcgcctgt atgatattgc      420
caatgtcaag ggagtcgctg cagatctcag ccactgcaac acgccttctc aggtcatgga      480
cttcactggc ccagcagaac tagctgactg cttgaaaggt gttgatgttg tcgtcatccc      540
tgcggtgtgc ccaaggaagc caggcatgac ccgtgatgac cttttaaca tcaatgcggg      600
catcgtcaag tcgcttattg aggctgttgc agacaactgc cctgaggcct tcatccatat      660
catcagcaac ccggtcaact ccactgtgcc gattgctgct gagat                          705

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<210> 132

<211> 706

<212> DNA

<213> Lolium perenne

<220>

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<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (13)..(13)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (21)..(21)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (27)..(27)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (627)..(627)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (681)..(681)

<223> n is a, c, g, or t

<400> 132

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acacannnaa aancaaaaag naccagnagc aaggggcgag ccggggcgca cgcagcaatt      60

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cccatctgct caccaaccca agttggagat ggcattcagct gttaccatca gctcagtcag    120
cgcgaggcc gctttggtct cgaaaccaag gaatcatggc agcacaagct acagtggcct    180
aaaggcatca tcattcgtcga tcagcttcga atcagggaca tcattcctgg gcaagaccgc    240
ctctcttcgg gcgactatca cctcaaggat tgtgccaaag gcaaagtctg ggtctcagat    300
atcacctcag gcctcgtaca aggtggcggt gcttggtgct gccggtggca tcggtcaacc    360
actgggcctg ctgatcaaga tgtctcctct ggtctcagag ctgcgcctgt atgatattgc    420
caatgtcaag ggagtcgctg cagatctcag cactgcaac acgccttctc aggtcatgga    480
cttactggc ccagcagaac tagctgactg cttgaaagggt gttgatgttg tcgtcatccc    540
tgcggtgtc ccaaggaagc caggcatgac ccgtgatgac ctttttaaca tcaatgcggg    600
catcgtcaag tcgcttattg aggtgntgc agacaactgc cctgaggcct tcatccatat    660
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<210> 133
<211> 634
<212> DNA
<213> Lolium perenne

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<220>
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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<400> 133
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gcgcaggccg ctttggtctc gaaaccaagg aatcatggca gcacaagcta cagtggccta    180
aaggcatcat catcgtcgat cagcttcgaa tcagggacat cattcctggg caagaccgcc    240
tctcttcggg cgactatcac ctcaaggatt gtgccaaagg caaagtctgg gtctcagata    300
tcacctcagg cctcgtacaa ggtggcggtg cttggtgctg ccggtggcat cgggtcaacca    360
ctgggcctgc tgatcaagat gtctcctctg gtctcagagc tgcgccctgta tgatattgcc    420
aatgtcaagg gagtcgctgc agatctcagc cactgcaaca cgccttctca ggtcatggac    480
ttcactggcc cagcagaact agctgactgc ttgaaagggt ttgatgttgt cgtcatccct    540

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gcgggtgtcc caaggaagcc aggcattgacc cgtgatgacc tttttaacat caatgcgggc 600
atcgtcaagt cgcttattga ggctgttgca gaca 634

<210> 134
<211> 758
<212> DNA
<213> Lolium perenne

<220>
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<222> (13)..(13)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (28)..(28)
<223> n is a, c, g, or t

<400> 134
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gcgcgcaggc cgccttggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc 180
taaaggcatc atcatcgtcg atcagcttcg aatcagggac atcattcctg ggcaagaccg 240
cctctcttcg ggcgactatc acctcaagga ttgtgccaaa ggcaaagtct gggctctcaga 300
tatcacctca ggcctcgtac aaggtggcgg tgcttggtgc tgccggtggc atcgggtcaac 360
cactgggcct gctgatcaag atgtctcctc tggcttcaga gctgcgcctg tatgatattg 420
ccaatgtcaa gggagtcgct gcagatctca gccactgcaa cacgccttct cagggtcatgg 480
acttcactgg cccagcagaa ctagctgact gcttgaaagg tgttgatgtt gtcgtcatcc 540
ctgcgggtgt cccaaggaag ccaggcatga cccgtgatga ctttttaac atcaatgcgg 600
gcatcgtcaa gtcgcttatt gaggtgttg cagacaactg ccctgaggcc ttcattcata 660
tcattcagcaa cccgggtcaac tccactgtgc cgattgctgc tgagattctg aaacagaagg 720
gcgtctacaa cccaagaag ctcttcgggg tttccacc 758

<210> 135
<211> 761
<212> DNA
<213> Lolium perenne

<220>
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<220>
<221> misc_feature
<222> (27)..(27)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (607)..(607)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (628)..(628)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (676)..(676)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (688)..(688)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (704)..(704)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (716)..(716)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (724)..(725)

<223> n is a, c, g, or t

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<221> misc_feature

<222> (737)..(737)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (746)..(746)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (751)..(751)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (754)..(754)

<223> n is a, c, g, or t

<400> 135

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gcgcgcaggc cgctttgggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc 180

taaaggcatc atcatcgtcg atcagcttcg aatcagggac atcattcctg ggcaagaccg 240

cctctcttcg ggcgactatc acctcaagga ttgtgccaaa ggcaaagtct ggggtctcaga 300

tatcacctca ggcctcgtag aaggtggcgg tgcttggtgc tgccggtggc atcgggtcaac 360

cactgggcct gctgatcaag atgtctcctc tgggtctcaga gctgcgcctg tatgatattg 420

ccaatgtcaa gggagtcgct gcagatctca gccactgcaa cacgccttct cagggtcatgg 480

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acttcactgg cccagctgaa ctagctgact gcttgaaagg tgttgatgtt gtcgtcatcc 540
ctgcgggtgt cccaaggaag ccaggcatga cccgtgatga cctttttaac atcaatgcgg 600
gcatcgncaa gtcgcttatt gaggtgntg cagacaactg ccctgaggcc ttcattcata 660
tcattcagcaa cccggncaac tccactgngc cgattgctgc tganattctg aaacanaagg 720
gcgnntacaa cccaanaag ctcttngggg nttncaccct g 761

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<210> 136
<211> 772
<212> DNA
<213> Lolium perenne

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<220>
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<222> (2)..(2)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (27)..(28)
<223> n is a, c, g, or t

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<400> 136
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gcgcgcaggc cgctttggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc 180
taaaggcatc atcatcgtcg atcagcttcg aatcagggac atcattcctg ggcaagaccg 240
cctctcttcg ggcgactatc acctcaagga ttgtgccaaa ggcaaagtct gggctctcaga 300
tatcacctca ggcctcgtac aaggtggcgg tgcttggtgc tgccggtggc atcgggtcaac 360
cactgggcct gctgatcaag atgtctctc tggtctcaga gctgcgcctg tatgatattg 420
ccaatgtcaa gggagtcgct gcagatctca gccactgcaa cacgccttct caggtcatgg 480
acttcactgg cccagcagaa ctagctgact gcttgaaagg tgttgatgtt gtcgtcatcc 540
ctgcgggtgt cccaaggaag ccaggcatga cccgtgatga cctttttaac atcaatgcgg 600
gcatcgtcaa gtcgcttatt gaggtggtg cagacaactg ccctgaggcc ttcattcata 660
tcattcagcaa cccggtcaac tccactgtgc cgattgctgc tgagattctg aaacagaagg 720
gcgtctacaa cccaagaag ctcttcgggg tttccaccct ggatgttgtc aa 772

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<210> 137
<211> 772
<212> DNA
<213> Lolium perenne

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<220>
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<223> n is a, c, g, or t

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<220>

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 <222> (27)..(28)
 <223> n is a, c, g, or t

<220>
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 <222> (772)..(772)
 <223> n is a, c, g, or t

<400> 137
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 gcgcgcaggc cgctttggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc 180
 taaaggcatc atcatcgtcg atcagcttcg aatcagggac atcattcctg ggcaagaccg 240
 cctctcttcg ggcgactatc acctcaagga ttgtgcaaaa ggcaaagtct gggctctcaga 300
 tatcacctca ggcctcgtac aagggtggcg tgcttggtgc tgccggtggc atcgggtcaac 360
 cactgggcct gctgatcaag atgtctcctc tggctctcaga gctgcgcctg tatgatattg 420
 ccaatgtcaa gggagtcgct gcagatctca gccactgcaa cacgccttct caggtcatgg 480
 acttcactgg ccagcagaaa ctagctgact gcttgaaagg tgttgatgtt gtcgtcatcc 540
 ctgcgggtgt cccaaggaag ccaggcatga cccgtgatga cctttttaac atcaatgcgg 600
 gcatcgtcaa gtcgcttatt gaggtgtgtg cagacaactg ccctgaggcc ttcattcata 660
 tcatcagcaa cccgggtcaac tccactgtgc cgattgctgc tgagattctg aaacagaagg 720
 gcgtctacaa cccaagaag ctcttcgggg tttccaccct ggatgttgtc an 772

<210> 138
 <211> 807
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (27)..(28)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (794)..(794)
 <223> n is a, c, g, or t

<400> 138
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 tcccatctgc tcaccaaccc aagttggaga tggcatcagc tgttaccatc agctcagtca 120
 gcgcgcaggc cgccttggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc 180
 taaaggcatc atcatcgtcg atcagcttcg aatcagggac atcattcctg ggcaagaccg 240
 cctctcttcg ggcgactatc acctcaagga ttgtgcaaaa ggcaaagtct gggctctcaga 300

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tattcacctca ggcctcgtac aaggtggcgg tgcttggtgc tgccggtggc atcgggtcaac 360
cactgggcct gctgatcaag atgtctcctc tgggtctcaga gctgcgcctg tatgatattg 420
ccaatgtcaa gggagtcgct gcagatctca gccactgcaa cacgccttct caggatcatgg 480
acttcactgg cccagcagaa ctagctgact gcttgaaagg tgttgatggt gtcgtcatcc 540
ctgcgggtgt cccaaggaag ccaggcatga cccgtgatga cctttttaac atcaatgcgg 600
gcatcgtcaa gtcgcttatt gaggtgtgtg cagacaactg ccctgaggcc ttcattcata 660
tcattcagcaa cccggtcaac tccactgtgc cgattgtgc tgagattctg aacagaagg 720
gcgtctacaa cccaagaag ctcttcgggg ttccaccct ggatgtgtgc agagctaaca 780
cattgttagc tcanaagaag aacctca 807

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<210> 139
<211> 628
<212> DNA
<213> Lolium perenne

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<220>
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<222> (3)..(3)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (5)..(6)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (12)..(12)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (18)..(19)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (26)..(27)
<223> n is a, c, g, or t

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<400> 139
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cgcaggccgc tttggtctcg aaaccaagga atcatggcag cacaagctac agtggcctaa 180
aggcaccatc atcgtcgatc agcttcgaat caggacatc attcctgggc aagaccgcct 240
ctcttcgggc gactatcacc tcaaggattg tgccaaaggc aaagtctggg tctcagatat 300
cacctcaggc ctctgacaag gtggcggtgc ttggtgctgc cggtggcatc ggtcaaccac 360
tgggcctgct gatcaagatg tctcctctgg tctcagagct gcgcctgtat gatattgcca 420
atgtcaaggg agtcgctgca gatctcagcc actgcaacac gccttctcag gtcattggact 480

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tcactggccc agcagaacta gctgactgct tgaaagggtgt tgatgttggtc gtcacccctg	540
cgggtgtccc aaggaagcca ggcacgaccc atgatgacct ttttaacatc aatgcgggca	600
tcgtcaagtc gcttattgag gctgttgct	628

<210> 140
 <211> 640
 <212> DNA
 <213> Lolium perenne

<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (5)..(6)
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<220>
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 <222> (12)..(12)
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<220>
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 <222> (18)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (26)..(27)
 <223> n is a, c, g, or t

<400> 140	
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cgcaggccgc tttggtctcg aaaccaagga atcatggcag cacaagctac agtggcctaa	180
aggcatcatc atcgtcgatc agcttcgaat caggacatc attcctgggc aagaccgcct	240
ctcttcgggc gactatcacc tcaaggattg tgccaaaggc aaagtctggg tctcagatat	300
cacctcaggc ctcgtacaag gtggcggtgc ttggtgctgc cgggtggcatc ggtcaaccac	360
tgggcctgct gatcaagatg tctcctctgg tctcagagct gcgcctgtat gatattgcca	420
atgtcaaggg agtcgctgca gatctcagcc gctgcaacac gccttctcag gtcattggact	480
tcactggccc agcagaacta gctgactgct tgagagggtgt tgatgttggtc gtcacccctg	540
cgggtgtccc aaggaagcca ggcacgaccc gtgatgacct ttttaacatc aatgcgggca	600
tcgtcaagtc gcttattgag gctgttgctcag acaactgccc	640

<210> 141
 <211> 698
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (5)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (18)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (25)..(25)
 <223> n is a, c, g, or t

<400> 141
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 catctgctca ccaaccaag ttggagatgg catcagctgt taccatcagc tcagtcagcg 120
 cgcaggccgc tttggtctcg aaaccaagga atcatggcag cacaagctac agtggcctaa 180
 aggcattcatc atcgtcgtc agcttcgaat cagggacatc attcctgggc aagaccgcct 240
 ctcttcgggc gactatcacc tcaaggattg tgccaaaggc aaagtctggg tctcagatat 300
 cacctcaggc ctcgtacaag gtggcggtgt ttggtgctgc cgggtggcatc ggtcaaccac 360
 tgggcctgct gatcaagatg tctcctctgg tctcagagct gcgcctgtat gatattgcc 420
 atgtcaaggg agtcgctgca gatctcagcc actgcaacac gccttctcag gtcattggact 480
 tcaactggccc agcagaacta gctgactgct tgaaagggtg tgatgttgtc gtcattccctg 540
 cgggtgtccc aaggaagcca ggcattgaccc gtgatgacct ttttaacatc aatgcgggca 600
 tcgtcaagtc gcttattgag gctgttgacg acaactgccc tgaggccttc atccatatca 660
 tcagcaaccc ggtcaactcc actgtgccga ttgctgct 698

<210> 142
 <211> 713
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (5)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (18)..(19)
 <223> n is a, c, g, or t

<220>

<221> misc_feature
 <222> (21)..(21)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (26)..(26)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (627)..(627)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (655)..(655)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (681)..(681)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (713)..(713)
 <223> n is a, c, g, or t

<400> 142
 canannaaaa acaaaaanna nccagnacgc aaggggcgag ccggggcgca cgcagcaatt 60
 cccatctgct caccaacca agttggagat ggcatacagct gttaccatca gctcagtcag 120
 cgcgaggcc gctttgatct cgaaaccaag gaatcctggc agcacaagct acagtggcct 180
 aaaggcatca tcatacgtcga tcagcttcga atcagggaca tcattcctgg gcaagaccgc 240
 ctctcttcgg gcgactatca cctcaaggat tgtgccaaag gcaaagtctg ggtctcagat 300
 atcacctcag gcctcgtaca aggtggcggt gcttggtgct gccggtggca tcggtcaacc 360
 actgggcctg ctgatcaaga tgtctcctct ggtctcagag ctgcgcctgt atgatattgc 420
 caatgtcaag ggagtcgctg cagatctcag ccaactgcaac acgccttctc aggtcatgga 480
 cttcactggc ccagcagaac tagctgactg cttgaaagggt gttgatgttg tcgtcatccc 540
 tgcgggtgtc ccaaggaagc caggcatgac ccgtgatgac ctttttaaca tcaatgcggg 600
 catcgtcaag tcgcttattg aggctgntgc agacaactgc cctgaggcct tcatncatat 660
 catcagcaac ccggtcaact nactgtgcc gattgctgct gagattctga aan 713

<210> 143
 <211> 771
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (26)..(26)
 <223> n is a, c, g, or t

<400> 143
 gaccagaaaa agaaaaaaga gccagncgca aggggcgagc cggggcgcac gcagcaattc 60

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ccatctgctc accaacccaa gttggagatg gcatcagctg ttaccatcag ctgagtcagc 120
gcgcaggccg ctttgggtctc gaaaccaagg aatcatggca gcacaagcta cagtggccta 180
aaggcatcat catcgtcgat cagcttcgaa tcagggacat cattcctggg caagaccgcc 240
tctcttcggg cgactatcac ctcaaggatt gtgccaaagg caaagtctgg gtctcagata 300
tcacctcagg cctcgtacaa ggtggcggtg cttgggtgctg ccggtggcat cggccaacca 360
ctgggcctgc tgaccaagat gtctcctctg gtctcagagc tgcgcctgta tgatattgcc 420
aatgtcaagg gagtcgctgc aggtctcagc cactgcaaca cgccttctca ggtcatggac 480
ttcactggtc cagcagaact agctgactgc ttgaaagggtg ttgatgttgt cgtcatccct 540
gcgggtgtcc caaggaagcc aggcgatgacc cgtgatgacc tttttaacat caatgcgggc 600
atcgtcaagt cgcttattga ggctgttgca gacaactgcc ctgaggcctt catccatata 660
atcagcaacc cgggtcaactc cactgtgccc attgctgctg agattctgaa acagaagggc 720
gtctacaacc ccaagaagct cttcgggggt tccaccctgg atgttgtcag a 771

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<210> 144
 <211> 773
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (26)..(27)
 <223> n is a, c, g, or t

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<400> 144
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cccattctgct caccaaccac agttggagat ggcattcagct gttaccatca gctcagtcag 120
cgcgaggccg gctttgggtct cgaaaccaag gaatcatggc agcacaagct acagtggcct 180
aaaggcatca tcattcgatga tcagcttcga atcagggaca tcattcctgg gcaagaccgc 240
ctctcttcgg gcgactatca cctcaaggat tgtgccaaag gcaaagtctg ggtctcagat 300
atcacctcag gcctcgtaca aggtggcggt gcttgggtgct gccggtggca tcggtcaacc 360
actgggcctg ctgatcaaga tgtctcctct ggtctcagag ctgcgcctgt atgatattgc 420
caatgtcaag ggagtcgctg cagatctcag ccactgcaac acgccttctc aggtcatgga 480
cttactggc ccagcagaac tagctgactg cttgaaagggt gttgatgttg tcgtcatccc 540
tgcggtgtgc ccaaggaagc caggcatgac ccgtgatgac ctttttaaca tcaatgcggg 600
catcgtcaag tcgcttattg aggtgttgac agacaactgc cctgaggcct tcattccatat 660
catcagcaac ccggtcaact ccactgtgcc gattgctgct gagattctga aacagaaggg 720
cgtctacaac cccaagaagc tcttcgggggt ttccaccctg gatgttgtca gag 773

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<210> 145
 <211> 684
 <212> DNA

<213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (545)..(545)
 <223> n is a, c, g, or t

<400> 145
 annaaaagna aaaagnnccc gncgcaaggg gcgagccggg gcgcacgcag caattcccat 60
 ctgctcacca acccaagttg gggatggcat cagctgttac catcagctca gtcagcgcgc 120
 aggccgcttt ggtctcgaaa ccaaggaatc atggcagcac aagctacagt ggcctaaagg 180
 catcatcatc gtcgatcagc ttcgaatcag ggacatcatt cctgggcaag accgcctctc 240
 ttcgggcgac tatcacctca aggattgtgc caaaggcaaa gtctgggtct cagatatcac 300
 ctcaggcctc gtacaaggtg gcggtgcttg gtgctgccgg tggcatcggc caaccactgg 360
 gcctgctgat caagatgtct cctctgggtc cagaactgcg cctgtatgat attgccaatg 420
 tcaagggagt cgctgcagat ctcagccact gcaacacgcc ttctcaggtc atggacttcg 480
 ctggcccagc agaactagct gactgcttga aagggtgtga tgttgctcgc atccctgcgg 540
 gtgtnccaag gaagccaggc atgaccctg atgacctttt taacatcaat gcgggcatcg 600
 tcaagtcgct tattgaggct gttgcagaca actgccctga ggccttcac catatcatca 660
 gcaacccggc caacttcact gtgc 684

<210> 146
 <211> 695
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (4)..(5)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (10)..(10)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (17)..(18)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (20)..(20)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (25)..(25)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (680)..(680)

<223> n is a, c, g, or t

<400> 146

anannaaan caaaaannan ccagnacgca aggggcgagc cggggcgcac gcagcaattc	60
ccatctgctc accaaccxaa gttggagatg gcatcagctg ttaccatcag ctcagtcagc	120
gcgcaggccg ctttggtctc gaaaccaagg aatcatggca gcacaagcta cagtggccta	180
aaggcatcat catcgtcgat cagcttcgaa tcagggacat cattcctggg caagaccgcc	240
tctcttcggg cgactatcac ctcaaggatt gtgccaaagg caaagtctgg gtctcagata	300
tcacctcagg cctcgtacaa ggtggcggtg cttggtgctg ccggtggcat cgggtcaacca	360
ctgggcctgc tgatcaagat gtctcctctg gtctcagagc tgcgcctgta tgatattgcc	420
aatgtcaagg gagtcgctgc agatctcagc cactgcaaca cgccttctca ggatcatggac	480
ttcactggcc cagcagaact agctgactgc ttgaaagggtg ttgatgttgt cgtcatccct	540
gcgggtgtcc caaggaagcc aggcattgacc cgtgatgacc tttttaacat caatgcgggc	600
atcgtcaagt cgcttattga ggctgttgca gacaactgcc ctgaggcctt catccatatc	660
atcagcaacc cgggtcaactn cactgtgccc attgt	695

<210> 147

<211> 695

<212> DNA

<213> Lolium perenne

<220>

<221> misc_feature

<222> (3)..(4)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (9)..(10)

<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (624)..(624)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (678)..(678)
 <223> n is a, c, g, or t

<400> 147
 aannaaaann aaaaannacc agnacgcaag gggcgagccg gggcgcacgc agcaattccc 60
 atctgctcac caaccgaagt tggagatggc atcagctggt accatcagct cagtcagcgc 120
 gcaggccgct ttggtctcga aaccaaggaa tcatggcagc acaagctaca gtggcctaaa 180
 ggcacatcatca tcgtcgatca gcttcgaatc agggacatca ttcctgggca agaccgcctc 240
 tcttcggggc actatcacct caaggattgt gccaaaggca aagtctgggt ctcagatatc 300
 acctcaggcc tcgtacaagg tggcggtgct tgggtgctgcc ggtggcatcg gtcaaccact 360
 gggcctgctg atcaagatgt ctctctggt ctcagagctg cgcctgtatg atattgccaa 420
 tgtcaaggga gtcgctgcag atctcagcca ctgcaacacg cttctcagg tcatggactt 480
 cactggccca gcagaactag ctgactgctt gaaagggtgt gatgttgtcg tcatccctgc 540
 ggggtgtcca aggaagccag gcatgacccg tgatgacctt ttaacatca atgcgggcat 600
 cgtcaagtcg cttattgagg ctgntgcaga caactgccct gaggccttca tccatatcat 660
 cagcaacccg gtcaactnca ctgtgccgat tgctg 695

<210> 148
 <211> 637
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (1)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (15)..(16)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<400> 148
 nnnaaaaana aaaannancc agnagcaagg ggcgagccgg ggcgcacgca gcaattccca 60
 tctgctcacc aaccaagtt ggagatggca tcagctgtta ccatcagctc agtcagcgcg 120
 caggccgctt tgggtctcgaa accaaggaat catggcagca caagctacag tggcctaaag 180
 gcatcatcat cgtcgatcag cttcgaatca gggacatcat tcctgggcaa gaccgcctct 240
 cttcggggcga ctatcacctc aaggattgtg ccaaaggcaa agtctgggtc tcagatatca 300
 cctcaggcct cgtacaaggt ggcggtgctt ggtgctgccg gtggcatcgg tcaaccactg 360
 ggcctgctga tcaagatgtc tcctctgggtc tcagagctgc gcctgtatga tattgccaat 420
 gtcaagggag tcgctgcaga tctcagccac tgcaacacgc cttctcaggt catggacttc 480
 actggccag cagaactagc tgactgcttg aaaggtgttg atgttgctgt catccctgcg 540
 ggtgtcccaa ggaagccagg catgaccctt gatgacctt ttaacatcaa tgcgggcatc 600
 gtcaagtcgc ttattgaggc tgttgagac aactgcc 637

<210> 149
 <211> 675
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (15)..(16)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (623)..(623)
 <223> n is a, c, g, or t

<400> 149
 annaaaaancc aaaannacca gnacgcaagg ggcgagccgg ggcgcacgca gcaattccca 60

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tctgctcacc aacccaagtt ggagatggca tcagctgtta ccatcagctc aatcagcgcg      120
caggccgctt tgggtctcgaa accaaggaat catggcagca caagctacag tggcctaaag      180
gcatcatcat cgtcgatcag cttcgaatca gggacatcat tcctgggcaa gaccgcctct      240
cttcggggcga ctatcacctc aaggattgtg ccaaaggcaa agtctgggtc tcagatatca      300
cctcaggcct cgtacaaggt ggcggtgctt ggtgctgccg gtggcatcgg tcaaccactg      360
ggcctgctga tcaagatgtc tcctctggtc tcagagctgc gcctgtatga tattgccaat      420
gtcaagggag tcgctgcaga tctcagccac tgcaacacgc cttctcaggt catggacttc      480
actggcccag cagaactagc tgactgcttg aaagggtgtg atgttgctcg catccctgcg      540
ggtgtcccaa ggaagccagg catgaccctt gatgacctt ttaacatcaa tgcgggcatc      600
gtcaagtcgc ttattgaggc tgntgcagac aactgccctg aggccttcac ccatatcatc      660
agcaaccg    tcaac                                     675

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<210> 150
<211> 764
<212> DNA
<213> Lolium perenne

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<220>
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<222> (1)..(1)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (720)..(720)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (741)..(741)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (745)..(745)
<223> n is a, c, g, or t

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<400> 150
nagaaaaaca aaaaagagcc agacgcaagg ggcgagccgg ggcgcacgca gcaattccca      60
tctgctcacc aacccaagtt ggagatggca tcagctgtta ccatcagctc agtcagcgcg      120
caggccgctt tgggtctcgaa accaaggaat catggcagca caagctacag tggcctaaag      180
gcatcatcat cgtcgatcag cttcgaatca gggacatcat tcctgggcaa gaccgcctct      240
cttcggggcga ctatcacctc aaggattgtg ccaaaggcaa agtctgggtc tcagatatca      300
cctcaggcct cgtacaaggt ggcggtgctt ggtgctgccg gtggcatcgg tcaaccactg      360
ggcctgctga tcaagatgtc tcctctggtc tcagagctgc gcctgtatga tattgccaat      420
gtcaagggag tcgctgcaga tctcagccac tgcaacacgc cttctcaggt catggacttc      480
actggcccag cagaactagc tgactgcttg aaagggtgtg atgttgctcg catccctgcg      540

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ggtgtcccaa ggaagccagg catgacccgt gatgaccttt ttaacatcaa tgcgggcatc 600
gtcaagtcgc ttattgaggc tgttgacagc aactgccctg aggccttcac ccatatcatc 660
agcaaccggt tcaactccac tgtgccgatt gctgctgaga ttctgaaaca gaacggcgtn 720
tccaccccaa gaagcttttc ngggnttaca ccctggatgt tgcc 764

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<210> 151
<211> 785
<212> DNA
<213> Lolium perenne

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<220>
<221> misc_feature
<222> (393)..(393)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (745)..(745)
<223> n is a, c, g, or t

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<400> 151
cagaaaaaag aaaagcagcc agacgcaagg ggcgagcccg ggcgcacgag caattcccat 60
ctgctcacca acccaagttg gacatggcat cagctgttac catcagttcg gtcagcgcgc 120
agtccgctct ggtttcgaaa ccaaggaatc atggcagcac gagcttcggt ggcctaaagg 180
catcatcggc gtcgatcagc tttgaatcag ggacatcggt cctgggcaag actgcctccc 240
tccgggagac tgttaccca aggattgtgc caaaggcaaa gtctgggtct cagatatcgc 300
ctcaggcatc ttacaagggt gcggtgcttg gtgctgctgg tggcatcggt caaccactgg 360
gcctgctgat caagatgtct cctctgggtc canagctgcg cctgtatgat attgccaatg 420
tcaagggcgt cgctgcagat cttagccact gcaacacgcc ttctcagggt atggacttca 480
ctggccccgc ggaactagcc gactgcttga aagggtgtga tgttgctcgt atccctgcgg 540
gtgtcccaaag gaagcctggc atgactcgtg atgacctttt taacatcaat gcgggcatcg 600
tcaagtcgct tatcgaggct gttgcagaca actgccctga ggccttcac ccatatcatc 660
gcaaccgggt caactccacg gtgccgattg ctgctgagat tctgaaacag aagggcgctct 720
acaaccccaa gaagctcttc ggggnttcca ccctggatgt tgtcagagct aacacatttg 780
tagct 785

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<210> 152
<211> 706
<212> DNA
<213> Lolium perenne

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<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

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<220>
<221> misc_feature

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<222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (14)..(15)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (676)..(676)
 <223> n is a, c, g, or t

<400> 152
 anaaaancaa aaannaccag nacgcaaggg gcgagccggg gcgcacgcag caattcccat 60
 ctgctcacca acccaagttg gagatggcat cagctgttac catcagctca gtcagcgcgc 120
 aggccgcttt ggtctcgaaa ccaaggaatc atggcagcac aagctacagt ggcctaaagg 180
 catcatcatc gtcgatcagc ttcgaatcag ggacatcatt cctgggcaag accgcctctc 240
 ttcgggcgac tatcacctca aggattgtgc caaaggcaaa gtctgggtct cagatatcac 300
 ctcaggcctc gtacaagggtg gcggtgcttg gtgctgccgg tggcatcggg caaccactgg 360
 gcctgctgat caagatgtct cctctgggtct cagagctgcg cctgtatgat attgccaatg 420
 tcaagggagt cgctgcagat ctcagccact gcaacacgcc ttctcagggtc atggacttca 480
 ctggcccagc agaactagct gactgcttga aagggtgttga tgttgctcgtc atccctgcgg 540
 gtgtcccaag gaagccaggc atgaccctg atgacctttt taacatcaat gcgggcatcg 600
 tcaagtcgct tattgaggct gttgcagaca actgccctga ggccttcac catatcatca 660
 gcaacccggg caactncact gtgccgattg ctgctgagat tctgaa 706

<210> 153
 <211> 682
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (1)..(1)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (6)..(8)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (538)..(538)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (597)..(598)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (649)..(650)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (679)..(679)

<223> n is a, c, g, or t

<400> 153

naacannnaa aaacaaaaaa ngggcgagcc ggggcgcacg cagcaattcc catctgcccc	60
ccaaccaag ttggacatgg catcagctgt caccatcagt tcagtcagcg cccaggccgc	120
tctggtgtca aaaccaagga gtcattggcag cagcagcttc agtggcctga aggcatcatc	180
atcgctgatc agcttcgaat ctggaacatc attcctgggc aagactgcct ctcttcgggc	240
gtcagtcacc cggaggattg tgccaaaggc aaagtctggg tctcagatat cgcctcaggc	300
atcttacaag gtggcggtgc ttggtgctgc cggtggcatc ggtcaaccac tgggcctgct	360
gatcaagatg tcgcctctgg tctcggagct gcgcctgtat gatattgcga atgtcaaggg	420
cgctcgctgcc gatctcagcc accgcaacac gcctgctcag gtcattggact tcaactggccc	480
cgcggaacta gcagagtgc tgaaaggcgt ggatgttgct gtcattccctg cgggtgtncc	540
aaggaagcca ggcattgaccc gtgatgacct ttttaacatc aatgcggcat cgtcagningc	600
ttatcgaggc tgttgagac actgcctgag gccttatcca tattatcann acccgggact	660
gcacgggtgcc gattgctgna at	682

<210> 154

<211> 712

<212> DNA

<213> Lolium perenne

<220>

<221> misc_feature

<222> (2)..(2)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (8)..(8)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (10)..(11)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (16)..(16)

<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (525)..(525)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (575)..(575)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (596)..(596)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (601)..(601)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (638)..(638)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (665)..(665)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (686)..(686)
 <223> n is a, c, g, or t

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<400> 154
gnacacanan naaaancaaa aaaggggcgga gccggggcgcg acacagcaat tcccatctgc      60
ccaccaaccc aagttggaca tggcatcagc tgtcaccatc agttcagtca gcgcccaggc      120
cgctctggtg tcaaaaccaa ggagtcattg cagcacgagc ttcagtggcc tgaaggcatc      180
atcatcgtcg atcagcttcg aatctggaac atcattcctg ggcaagactg cctctcttcg      240
ggcgctcagtc accccgagga ttgtgcaaaa ggcaaagtct gggctctcaga tatcgccctca      300
ggcatcttac aaggtggcgg tgcttggtgc tgccggtggc atcgggtcaac cactgggcct      360
gctgatcaag atgtcgccctc tggcctcgga gctgcgcctg tatgatattg cgaatgtcaa      420
gggcgtcgct gccgatctca gccactgcaa cacgcctgct caggtcatgg acttcactgg      480
ccccgcggaa ctagcagagt gcttgaaagg cgtggatggt gtcgnatccc tgcgggtggt      540
ccaaggaagc caggcatgac ccgtgatgac ctttntaaca tcaatgcggg catcgncaag      600
ncgcttatcg aggctgttgc agacaactgc cctgaggngt tgatccatat tatgagaacc      660
ccggncaact ccacggcgcc gattgntgca gagattctga aacagaaggc gt              712

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<210> 155
 <211> 644
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (11)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (619)..(619)
 <223> n is a, c, g, or t

<400> 155
 aaaccaaaaa nnaccagna gccaaggggc gagccggggc gcacgcagca attcccatct 60
 gctcaccaac ccaagttgga gatggcatca gctgttacca tcagctcagt cagcgcgag 120
 gccgctttgg tctcgaacc aaggaatcat ggcagcaca gctacagtgg cctaaaggca 180
 tcatcatcgt cgatcagctt cgaatcaggg acatcattcc tgggcaagac cgcctctctt 240
 cgggcgacta tcacctcaag gattgtgcca aaggcaaagt ctgggtctca gatatcacct 300
 caggcctcgt acaaggtggc ggtgcttggt gctgccggtg gcatcgggtca accactgggc 360
 ctgctgatca agatgtctcc tctgggtctca gagctgcgcc tgtatgatat tgccaatgtc 420
 aaggagtcg ctgcagatct cagccactgc aacacgcctt ctcagggtcat ggacttact 480
 ggcccagcag aactagctga ctgcttgaaa gggttgatgt tgtcgtcatc cctgcgggtg 540
 tccaaggaa gccaggcatg acccgtgatg accttttta catcaatgcg ggcacgtca 600
 agtcgcttat tgaggctgnt gcagacaact gccctgagggc cttt 644

<210> 156
 <211> 683
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(10)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (671)..(671)

<223> n is a, c, g, or t

<400> 156
 gncacananann aaaaacaaaa aangggcgag ccggggcgca cgcagcaatt cccatctgcc 60
 caccaacca agttggacat ggcacagct gtcaccatca gttcagtcag cgcccaggcc 120
 gctctggtgt caaaaccaag gagtcatggc agcacgagct tcagtggcct gaaggcatca 180
 tcacgtcga tcagcttcga atctggaaca tcattcctgg gcaagactgc ctctcttcgg 240
 gcgtcagtca ccccaggat tgtgccaaag gcaaagtctg ggtctcagat atgcctcag 300
 gcatcttaca aggtggcggt gcttggtgct gccggtggca tcggtcaacc actgggcctg 360
 ctgatcaaga tgtgcctct ggtctcggag ctgcgcctgt atgatattgc gaatgtcaag 420
 gggtcgtcgt ccgatctcag ccaactgcaac acgcctgctc aggtcatgga cttcactggc 480
 cccgcggaac tagcagagt cttgaaaggc gtggatgttg tcgtcatccc tgcgggtgtc 540
 ccaaggaagc caggcatgac ccgtgatgac cttttaaca tcaatgcggg catcgtcaag 600
 tcgcttatcg aggtgttgac agacaactgc cctgaggcct tcatccatat ttcagcaac 660
 ccggtcaact ncacggtgcc gat 683

<210> 157
 <211> 695
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (10)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (550)..(550)
 <223> n is a, c, g, or t

<400> 157
 gancccanan naaaaanaaa aaangggcgca gccggggcgca acgcagcaat tcccatctgc 60
 ccaccaaccc aagttggaca tggcatcagc tgtcaccatc agttcagtca gcgcccaggc 120

```

cgctctggtg tcaaaaccaa ggagtcattg cagcacgagc ttcagtggcc tgaaggcatc 180
atcatcgtcg atcagcttcg aatctggaac atcattcctg ggcaagactg cctctcttcg 240
ggcgtcagtc accccgagga ttgtgcaaaa ggcaaagtct gggcttcaga tatcgccctca 300
ggcatcttac aaggtggcgg tgcttggtgc tgccggtggc atcgggtcaac cactgggcct 360
gctgatcaag atgtcgcctc tggctcgcga gctgcgcctg tatgatattg cgaatgtcaa 420
ggcgctcgct gccgatctca gccactgcaa cacgcctgct ctgggtcatgg acttcactgg 480
ccccgcggaa ctacgagagt gcttgaaagg cgtggatggt gtcgtcatcc ctgcgggtgt 540
cccaaggaan ccaggcatga cccgtgatga cctttttaac atcaatgcgg gcatcgtcaa 600
gtcgcttatc gaggtgttg cagacaactg ccctgaggcc ttcattcata ttatcagcaa 660
cccggtaac tccacggtgc cgattgctgc agaga 695

```

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<210> 158
<211> 802
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (12)..(12)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (89)..(89)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (740)..(740)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (773)..(773)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (780)..(780)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (783)..(783)
<223> n is a, c, g, or t

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<400> 158
gaccagaaaa angaaaaaag gggcgagccg gggcgacgc agcaattccc atctgcccac 60
caaccaagt tggacatggc atcagctgnc accatcagtt cagtcagcgc ccaggccgct 120
ctgggtgtcaa aaccaaggag tcatggcagc acgagcttca gtggcctgaa ggcattcatca 180
tcgtcgatca gcttcgaatc tggaacatca ttcctgggca agactgcctc tcttcggggc 240
tcagtcaccc cgaggattgt gccaaaggca aagtctgggt ctcagatata gcctcaggca 300

```

```

tcttacaagg tgggtggtgct tgggtgctgct ggtggcatcg gtcaaccact gggcctgctg 360
atcaagatgt ctctcttggt ctgagagctg cgcctgtatg atattgcaa tgtcaagggc 420
gtcgctgcag atcttagcca ctgcaacacg ccttctcagg tcatggactt cactggcccc 480
gcggaactag ccgactgctt gaaaggtgtg gatgttgctg tcatccctgc ggggtgtccca 540
aggaagcctg gcatgactcg tgatgacctt tttaacatca atgcgggcat cgtcaagtcg 600
cttatcgagg ctgttgca ga caactgccct gaggccttca tccatatcat cagcaacccg 660
gtcaactcca cggtgccgat tgctgctgag attctgaaac agaagggcgt ctacaacccc 720
aagaagctct tcgggggttn caccctggat gttgtcagag ctaacacatt tgnagctcan 780
aanaagaacc tcagtcttat cg 802

```

```

<210> 159
<211> 637
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (4)..(4)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (10)..(11)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (18)..(19)
<223> n is a, c, g, or t

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<400> 159
aaanaaaan naccagng caaggggcga gccggggcgc acgcagcaat tcccatctgc 60
tcaccaacc aagttggaga tggcatcagc tgttaccatc agctcagtca gcgcgcaggc 120
cgctttggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc taaaggcatc 180
atcatcgctg atcagcttcg aatcaggac atcattcctg ggcaagaccg cctctcttcg 240
ggcgactatc acctcaagga ttgtgccaaa ggcaaagtct gggctctcaga tatcacctca 300
ggcctcgta aaggtggcgg tgcttggtgc tgccgggtggc atcgggtcaac cactgggcct 360
gctgatcaag atgtctcctc tggctctcaga gctgcgcctg tatgatattg ccaatgtcaa 420
gggagtcgct gcagatctca gccactgcaa cagccttct caggatcatgg acttcactgg 480
cccagcagaa ctagctgact gcttgaaagg tggtgatgtt gtcgtcatcc ctgcggtgtg 540
cccaaggaag ccagacaact gccctgaggc cttcatccat atcatcagca acccggtcaa 600
ctccactgtg ccgattgctg ctgagatcta aacagaa 637

```

```

<210> 160
<211> 686
<212> DNA

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<213> Lolium perenne

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (673)..(673)
 <223> n is a, c, g, or t

<400> 160
 aanccaaaaa nnaccagnac gcagggggcg agccggggcg cacgcagcaa ttcccatctg 60
 ctaccaacc caagttggag atggcatcag ctgttaccat cagctcagtc agcgcgagg 120
 ccgctttggt ctcgaaacca aggaatcatg gcagcacaag ctacagtggc ctaaaggcat 180
 catcatcgtc gatcagcttc gaatcaggga catcattcct gggcaagacc gcctctcttc 240
 gggcgactat cacctcaagg attgtgcaa aggcaaagtc tgggtctcag atatcacctc 300
 aggccctcgt caaggtggcg gtgcttggtg ctgccggtgg catcgggtcaa ccactgggcc 360
 tgctgatcaa gatgtctcct ctggtctcag agctgcgcct gtatgatatt gccaatgtca 420
 agggagtcgc tgcagatctc agccactgca acacgccttc tcagggtcatg gacttcactg 480
 gccagcaga actagctgac tgcttgaaag gtgttgatgt tgcgtcatc cctgcgggtg 540
 tccaaggaa gccaggcatg acccgtgatg acctttttaa catcaatgcg ggcacgtca 600
 agtcgcttat tgaggctgtt gcagacaact gccctgaggc cttcatccat atcatcagca 660
 acccgtgcaa ctncactgtg ccgatt 686

<210> 161
 <211> 693
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (672)..(672)

<223> n is a, c, g, or t

<400> 161

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aaacaaaaaa naccagnacg caaggggcca gccggggcgc acgcagcaat tcccatctgc      60
tcaccaaccc aagttggaga tggcatcagc tgttaccatc agctcagtca gcgcgcaggc      120
cgctttggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc taaaggcatc      180
atcatcgctg atcagcttcg aatcagggac atcattcctg ggcaagaccg cctctcttcg      240
ggcgactatc acctcaagga ttgtgccaaa ggcaaagtct ggggtctcaga tatcacctca      300
ggcctcgtag aaggtggcgg tgcttggtgc tgccggtggc atcgggtcaac cactgggcct      360
gctgatcaag atgtctctc tggtctcaga gctgcgcctg tatgatattg ccaatgtcaa      420
gggagtcgct gcagatctca gccactgcaa cacgccttct caggtcatgg gcttactg      480
cccagcagaa ctagctgact gcttgaaagg tggtgatgtt gtcgtcatcc ctgcgggtgt      540
cccaaggaag ccaggcatga cccgtgatga cctttttaac atcaatgcgg gcatcgtcaa      600
gtcgtcttatt gaggtgttg cagacaactg ccctgaggcc ttcattcata tcatcagcaa      660
cccgggtcaac tncactgtgc cgattgctgc tgc                                     693

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<210> 162

<211> 647

<212> DNA

<213> *Lolium perenne*

<220>

<221> misc_feature

<222> (6)..(6)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (8)..(9)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (15)..(15)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (17)..(17)

<223> n is a, c, g, or t

<400> 162

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cacaananna aaaananaaa aggggcgagc cggggcgcac gcagcaattc ccatctgccc      60
accaacccaa gttggacatg gcatcagctg tcaccatcag ttcagtcagc gcccaggccg      120
ctctggtgtc aaaaccaagg agtcatggca gcacgagctt cagtggcctg aaggcatcat      180
catcgtcgat cagcttcgaa tctggaacat cattcctggg caagactgcc tctcttcggg      240
cgtcagtcac cccgaggatt gtgccaagg caaagtctgg gtctcagata tcgcctcagg      300
catcttaciaa ggtggcggtg cttggtgctg ccggtggcat cgggtcaacca ctgggcctgc      360
tgatcaagat gtcgcctctg gtctcggagc tgcgcctgta tgatattgcg aatgtcaagg      420

```

gcgtcgctgc cgatctcagc cactgcaaca cgcctgctca ggatcatggac ttcactggcc 480
 ccgcggaact agcagagtgc ttgaaaggcg tggatgttgt cgtcatccct gcgggtgtcc 540
 caaggaagcc aggcattgacc cgtgatgacc tttttaacat caatgcgggc atcgtcaagt 600
 cgcttatcga ggctgttgca gacaactgcc ctgaggcctt catccat 647

<210> 163
 <211> 661
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (3)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (10)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<400> 163
 aannaaaaan naccagnacg cagggggcga gccggggcgc acgcagcaat tcccatctgc 60
 tcaccaaccc aagttggaga tggcatcagc tgttaccatc agctcagtca gcgcgcaggc 120
 cgcttttggtc tcgaaaccaa ggaatcatgg cagcacaagc tacagtggcc taaaggcatc 180
 atcatcgtcg atcagcttcg aatcagggac atcattcctg ggcaagaccg cctctcttcg 240
 ggcgactatc acctcaagga ttgtgcaaaa ggcaaagtct ggggtctcaga tatcacctca 300
 ggcctcgtac aaggtggcgg tgcttggtgc tgccgggtggc atcgggtcaac cactgggcct 360
 gctgatcaag atgtctcctc tgggtctcaga gctgcgcctg tatgatattg ccaatgtcaa 420
 gggagtcgct gcagatctca gccactgcaa cagccttct caggatcatgg acttcactgg 480
 cccagcagaa ctagctgact gcttgaaagg tggtgatgtt gtcgtcatcc ctgcgggtgt 540
 cccaaggaag ccaggcatga cccgtgatga ctttttaac atcaatgcgg gcatcgtcaa 600
 gtcgcttatt gaggctgttg cagacaactg ccctgaggcc ttcattcata tcacagcaa 660
 c 661

<210> 164
 <211> 640
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (2)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (13)..(13)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> n is a, c, g, or t

<400> 164
 gnnnaanaaaa aanaaaanan gggcgagccg gggcgcacgc agcaattccc atctgcccac 60
 caacccaagt tggacatggc atcagctgtc accatcagtt cagtcagcgc ccaggccgct 120
 ctggtgtcaa aaccaaggag tcatggcagc acgagcttca gtggcctgaa ggcacatca 180
 tcgtcgatca gcttcgaatc tggaacatca ttcctgggca agactgcctc tcttcgggcg 240
 tcagtcaccc cgaggattgt gccaaaggca aagtctgggt ctcagatatc gcctcaggca 300
 tcttacaagg tggcggtgct tgggtgctgcc ggtggcatcg gtcaaccact gggcctgctg 360
 atcaagatgt cgctctggt ctcggagctg cgctgtatg atattgcgaa tgtcaagggc 420
 gtcgctgccg acctcagcca ctgcaacacg cctgctcagg tcatggactt cactggcccc 480
 gcggaactag cagagtgtt gaaaggcgtg gatgttgtcg tcatccctgc ggggtgtcca 540
 aggaagccag gcatgaccg tgatgacctt tttaacatca atgcgggcat cgtcaagtcg 600
 cttatcgagg ctgttgcaga caactgccct gaggccttca 640

<210> 165
 <211> 681
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (5)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> n is a, c, g, or t

<400> 165
 canannaaaa acaaaaaang ggcgagccgg ggcgcacgca gcaattccca tctgcccacc 60

aaccaagtt ggacatggca tcagctgtca ccatcagttc agtcagcgcc caggccgctc 120
 tgggtgtcaaa accaaggagt catggcagca cgagcttcag tggcctgaag gcatcatcat 180
 cgtcgatcag cttcgaatct ggaacatcat tcctgggcaa gactgcctct cttcgggcgt 240
 cagtcacccc gaggattgtg ccaaaggcaa agtctgggtc tcagatatcg cctcaggcat 300
 cttacaaggt ggcggtgctt ggtgctgccg gtggcatcgg ttaaccactg ggcctgctga 360
 tcaagatgtc gcctctggtc tcggagctgc gcctgtatga tattgcgaat gtcaagggcg 420
 tcgctgccga tctcagccac tgcaacacgc ctgctcaggt catggacttc actggccccg 480
 cggaactagc agagtgcctg aaaggcgtgg atgttgctgt catccctgcg ggtgtcccaa 540
 ggaagccagg catgaccctg gatgaccttt ttaacatcaa tgcgggcacg gtcaagtcgc 600
 ttatcgaggc tgttgacagc aactgccctg aggccttcat ccatattatc agcaaccg 660
 tcaactccac ggtgccgatt g 681

<210> 166
 <211> 741
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<400> 166
 gnaccagaaa aagaaaaaaaa ggggcgagcc ggggcgcacg cagcaattcc catctgcccc 60
 ccaaccaag ttggacatgg catctgctgt caccatcagt tcagtcagcg cccaggccgc 120
 tctggtgtca aaaccaagga gtcatggcag cagcagcttc agtggcctga aggcatcatc 180
 atcgtcgatc agcttcgaat ctggagcatc attcctgggc aagactgcct ctcttcgggc 240
 gtcagtcacc ccgaggattg tgccaaaggc aaagtctggg tctcagatat cgcctcaggc 300
 atctcacaag gtggcggtgc ttggtgctgc cgggtggcatc ggtcaaccac tgggcctgct 360
 gatcaagatg tcgcctctgg tctcggagct gcgcctgtat gatattgcga atgtcaaggg 420
 cgtcgctgcc gatctcagcc actgcaacac gcctgctcag gtcattggact tcaactggccc 480
 cgcggaacta gcagagtgtc tgaaaggcgt ggatgttgct gtcattccctg cgggtgtccc 540
 aaggaagcca ggcattgaccc gtgatgacct ttttaacatc aatgcgggca tcgtcaagtc 600
 gcttatcgag gctgttgag acaactgcc tgaggccttc atccatatta tcagcaaccc 660
 ggtcaactcc acggtgccga ttgctgcaga gattctgaaa cagaagggcg tctacaaccc 720
 caagaagctc ttcgggggttt c 741

<210> 167
 <211> 665
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (3)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (614)..(614)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (664)..(664)
 <223> n is a, c, g, or t

<400> 167
 cannnnaaaa ncaaaaaagg gnacgagccg gggcgacgc agcaattccc atctgcccac 60
 caaccaagt tggacatggc atcagctgtc accatcagtt cagtcagcgc ccaggccgct 120
 ctggtgtcaa aaccaaggag tcatggcagc acgagcttca gtggcctgaa ggcatcatca 180
 tcgtcgatca gcttcgaatc tggaacatca ttcttgggca agactgcctc tcttcgggcg 240
 tcagtcaccc cgaggattgt gccaaaggca aagtctgggt ctcagatatc gcctcaggca 300
 tcttacaagg tggcggtgct tgggtgctgcc ggtggcatcg gtcaaccact gggcctgctg 360
 atcaagatgt cgcctctggt ctcgagctg cgcctgtatg atattgcgaa tgtcaagggc 420
 gtcgtgccg atctcagcca ctgcaacacg cctgctcagg tcatggactt cactggcccc 480
 gcggaactag cagagtgtt gaaaggcgtg gatgttgtcg tcatccctgc ggggtgtcca 540
 aggaagccag gcatgacccg tgatgacctt tttaacatca atgcgggcat cgtcaagtcg 600
 cttatcgagg ctgntgcaga caactgccct gaggccttca tccatattat cagcaacccg 660
 gtcna 665

<210> 168
 <211> 680
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (5)..(6)
 <223> n is a, c, g, or t

<220>

<221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (667)..(667)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (680)..(680)
 <223> n is a, c, g, or t

<400> 168
 canannaaaa ananaaaang ggcgagccgg ggcgcacgca gcaattccca tctgcccacc 60
 aaccaagtt ggacatggca tcagctgtca ccatcagttc agtcagcgcc caggccgctc 120
 tgggtgtcaa accaaggagt catggcagca cgagcttcag tggcctgaag gcatcatcat 180
 cgtcgatcag cttcgaatct ggaacatcat tcctgggcaa gactgcctct cttcggggcgt 240
 cagccacccc gaggattgtg ccaaaggcaa agtctgggtc tcagatatcg cctcaggcat 300
 cttacaaggt ggcgggtgctt ggtgctgccc gtggcatcgg tcaaccactg ggcctgctga 360
 tcaagatgtc gcctctggtc tcggagctgc gcctgtatga tattgcgaat gtcaagggcg 420
 tcgctgccga tctcagccac tgcaacacgc ctgctcaggt catggacttc actggccccg 480
 cggaactagc agagtgtttg aaaggcgtgg atgttgctgt catccctgcg ggtgtcccaa 540
 ggaagccagg catgacccgt gatgaccttt ttaacatcaa tgcggggcatc gtcaagtcgc 600
 ttatcgaggc tgttgacagc aactgccctg aggccttcat ccatattatc agcaaccg 660
 tcaactncac ggtgccgatn 680

<210> 169
 <211> 770
 <212> DNA
 <213> Lolium perenne

<400> 169
 gaccagaaaa agaaaaaag gggcgagccg gggcgacgc agcaattccc atctgcccac 60
 caaccaagt tggacatggc atcagccgtc accatcagtt cagtcagcgc ccaggccgct 120
 ctggtgtcaa aaccaaggag tcatggcagc acgagcttca gtggcctgaa ggcacatca 180
 tcgtcgatca gcttcgaatc tggaacatca ttcctgggca agactgcctc tcttcggggc 240
 tcagtcaccc cgaggattgt gccaaaggca aagtctgggt ctcagatatc gcctcaggca 300
 tcttacaagg tggcgggtgct tgggtgtgcc ggtggcatcg gtcaaccact gggcctgctg 360

atcaagatgt cgcctctggt ctcggagctg cgcctgtatg atattgcgaa tgtcaagggc 420
 gtcgctgccg atctcagcca ctgcaacacg cctgctcagg tcatggactt cactggcccc 480
 gcggaactag cagagtgtt gaaaggcgtg gatgttgtcg tcatccctgc ggggtgtccca 540
 aggaagccag gcatgacccg tgatgacctt tttaacatca atgcgggcat cgtcaagtcg 600
 cttatcgagg ctgttgacaga caactgccct gaggccttca tccatattat cagcaacccg 660
 gtcaactcca cggtgccgat tgctgcagag attctgaaac agaagggcgt ctacaacccc 720
 aagaagctct tcgggggttc caccctggat gttgtcaggg ctaacacatt 770

<210> 170
 <211> 702
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (4)..(5)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> n is a, c, g, or t

<400> 170
 anannaaaaa naaaaaaangg gcgagccggg gcgcacgcag caattcccat ctgcccacca 60
 acccaagttg gacatggcat cagctgtcac catcagttca gtcagcgccc aggccgctct 120
 ggtgtcaaaa ccaaggagtc atggcagcac gagcttcagt ggcctgaagg catcatcatc 180
 gtcgatcagc ttcgaatctg gaacatcatt cctgggcaag actgcctctc ttcgggcgtc 240
 agtcaccccg aggattgtgc caaaggcaaa gtctgggtct cagatatcgc ctgaggcatc 300
 ttacaagggtg gcggtgcttg gtgctgccgg tggcatcggt caaccactgg gcctgctgat 360
 caagatgtcg cctctggtct cggagctgcg cctgtatgat attgcgaatg tcaagggcgt 420
 cgctgccgat ctgagccact gcaacacgcc tgctcaggtc atggacttca ctggccccgc 480
 ggaactagca gagtgttgga aaggcgtgga tggtgtcgtc atccctgcgg gtgtcccaag 540
 gaagccaggc atgaccctgt atgacctttt taacatcaat gcgggcatcg tcaagtcgct 600
 tatcgaggct gttgcagaca actgccctga ggccttcac catattatca gcaaccgggt 660
 caactccacg gtgccgattg ctgcagagat tctgaaacag ag 702

<210> 171

<211> 777
 <212> DNA
 <213> Lolium perenne

<400> 171
 cagaaaaaga aaaaaagggg cgagccgggg cgcacgcagc aattcccatc tgcccaccaa 60
 cccaagttag acatggcatc agctgtcacc atcagttcag tcagcgccca ggccgctctg 120
 gtgtcaaaac caaggagtca tggcagcacg agcttcagtg gcctgaaggc atcatcatcg 180
 tcgatcagct tcgaatcttg aacatcattc ctgggcaaga ctgcctctct tcgggctgca 240
 gtcaccccgga ggattgtgcc aaaggcaaag tctgggtctc agatatcgcc tcaggcatct 300
 tacaaggtgg cgggtgcttg tgctgccggg ggcatcgggc aaccactggg cctgctgata 360
 aagatgtcgc ctctgggtct ggagctgcgc ctgtatgata ttgcgaatgt caagggcgctc 420
 gctgccgata tcagccactg caacacgcct gctcaggtca tggacttcac tggccccgcg 480
 gaactagcag agtgcttgaa aggcgtggat gttgtcgtca tccctgcggg tgtcccaagg 540
 aagccaggca tgacccgtga tgaccttttt aacatcaatg cgggcatcgt caagtcgctt 600
 atcagggtg ttgcagacaa ctgccctgag gccttcattc atattatcag caaccgggtc 660
 aactccacgg tgccgattgc tgagagatt ctgaaacaga agggcgtcta caaccccaag 720
 aagctcttcg ggggtttccc cctggatggt gtcagggtcta acacatttgt agtcaa 777

<210> 172
 <211> 707
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (659)..(659)
 <223> n is a, c, g, or t

<400> 172
 aaaaaaanaa ngggcgagcc ggggcgcacg cagcaattcc catctgcccc ccaacccaag 60
 ttggacatgg catcagctgt caccatcagt tcagtcagcg ccagggccgc tctgggtgtca 120
 aaaccaagga gtcatggcag cacgagcttc agtggcctga aggcattcat atcgctcagc 180
 agcttcgaat ctggaacatc attcctgggc aagactgcct ctcttcgggc gtcagtcacc 240
 ccgaggattg tgccaaaggc aaagtctggg tctcagatat cgcctcaggc atcttacaag 300
 gtggcggtgc ttgggtgctgc cgggtggcatc ggtcaaccac tgggcctgct gatcaagatg 360
 tcgcctctgg tctcggagct ggcctgtat gatattgcga atgtcaaggg cgtcgctgcc 420

```

gatctcagcc actgcaacac gcctgctcag gtcattggact tcaactggccc cgcggaacta    480
gcagagtgtc tgaaaggcgt ggatgttgct gtcattccctg cgggtgtccc aaggaagcca    540
ggcatgaccc gtgatgacct ttttaacatc aatgcgggca tcgtcaagtc gcttatcgag    600
gctgttgtag acaactgccc tgaggccttc atccatatta tcagcaaccc ggtcaactnc    660
acggtgccga ttgctgcaga gattctgaaa caaaaggcgt ctacaac                    707

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<210> 173
<211> 687
<212> DNA
<213> Lolium perenne

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<220>
<221> misc_feature
<222> (3)..(4)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (11)..(11)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (571)..(571)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (605)..(605)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (655)..(655)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (665)..(665)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (674)..(674)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (680)..(680)
<223> n is a, c, g, or t

```

```

<400> 173
aannaaaaaa ngggcgagcc ggggcgcacg cagcaattcc catctgcccc ccaacccaag    60
ttggacatgg catcagctgt caccatcagt tcagtcagcg cccaggccgc tctggtgtca    120
aaaccaagga gtcattggcag cacgagcttc agtggcctga aggcattcat atcgtcgatc    180
agcttcgaat ctggaacatc attcctgggc aagactgcct ctcttcgggc gtcagtcacc    240
ccgaggattg tgccaaaggc aaagtctggg tctcagatat cgcctcaggc atcttacaag    300

```

```

gtggcggtgc ttggtgctgc cggtggcatc ggtcaaccac tgggcctgct gatcaagatg      360
tcgcctctgg tctcggagct gcgcccgtat gataatgcga atgtcaaggg cgtcgctgcc      420
gatctcagcc actgcaacac gcctgctcag gtcattggact tcaactggccc cgcggaacta      480
gcagagtgtc tgaaaggcgt ggatgctgtc gtcattccctg cgggtgtccc aaggaagcca      540
ggcatgaccc gtgatgacct ttttaacatc natgcgggca tcgtcaagtc gcttatcgag      600
gctgntgcag acaactgccc tgaggccttc atccatatta tcagcaaccc ggtcnactcc      660
acgnggccga ttgntgcaan attttgc                                           687

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<210> 174
<211> 473
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (211)..(211)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (258)..(258)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (354)..(355)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (369)..(369)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (397)..(397)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (421)..(422)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (441)..(441)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (445)..(445)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (461)..(461)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature

```

<222> (465)..(465)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (468)..(468)
 <223> n is a, c, g, or t

<400> 174
 caaggggcca gccggggcgc acgcagcaat tcccatctgc tcaccaaccc aagttggaga 60
 tggcatcagc tgttaccatc agctcagtca gcgcgcaggc cgctttgggc tcgaaaccaa 120
 ggaatcatgg cagcacaagc tacagtggcc taaaggcatc atcatcgtcg atcagcttcg 180
 aatcagggcc atcattcctg gacaagaccg nctctcttcg ggcgactatc acctcaagga 240
 ttgtgccaaa ggcaaagnct gggctcaga tatcacctca ggcctcgtac aagggtggcgg 300
 tgcttggtgc tgccggtggc atcgggtcaac cactgggcct gctgatcaag atgnntcctc 360
 tgggtctcana gctgcgcctg tatgatattg ccaatgncaa gggagtcgct gcaaatctca 420
 nncactgcaa cagccttct naggnecatgg acttcactgg nccancanaa cta 473

<210> 175
 <211> 642
 <212> DNA
 <213> Lolium perenne

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(10)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (38)..(38)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (478)..(478)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (641)..(641)
 <223> n is a, c, g, or t

<400> 175
 anaggggcnh gccggggcgc cgcgaattcc atctgccncc accaagttgg acatggcatc 60
 agctgtacca tcagttagta gcgcccaggc cgctctggtg taaaaccaag gagtcatggc 120
 agcacgagct tcagtggcct gaaggcatca tcatcgtcga tcagcttcga atctggaaca 180
 tcattcctgg gcaagactgc ctctcttcgg gcgtcagtca ccccgaggat tgtgccaaag 240
 gcaaagtctg ggtctcagat atcgccctcag gcacattaca aggtggcggg gcttggtgct 300

```

gctggtggca tcggtcaacc actgggcctg ctgatcaaga tgtctcctct ggtctcagag    360
ctgcgctgt atgatattgc caatgtcaag ggcgtcgctg cagatcttag ccactgcaac    420
acgccttctc aggtcatgga cttcactggc cccgcggaac tagccgactg cttgaaangt    480
gtggatgttg tcgtcatccc tgcgggtgtc ccaaggaagc ctggcatgac tcgtgatgac    540
ctttttaaca tcaatgcggg catcgccaag tcgcttatca aggctgttgc agacaactcc    600
cttgaggcct tcatccatat catcagcaac ccggtcaact nc                        642

```

<210> 176
 <211> 767
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

```

<400> 176
ggagccgggg cncgcagca attcccatct gtcaccaac ccaagttgga gatggcatca    60
gctgttacca tcagctcagt cagcgcgcag gccgctttgg tctcgaaacc aaggaatcat    120
ggcagcacia gctacagtgg cctaaaggca tcatcatcgt cgatcagctt cgaatcaggg    180
acatcattcc tgggcaagac cgcctctctt cgggcgacta tcacctcaag gattgtgcca    240
aaggcaaagt ctgggtctca gatatcacct caggcctcgt acaaggtggc ggtgcttggt    300
gctgccggtg gcatcgggtca accactgggc ctgctgatca agatgtctcc tctgggtctca    360
gagctgcgcc tgtatgatat tgccaatgtc aagggagtcg ctgcagatct cagccactgc    420
aacacgcctt ctcagggtcat ggacttcact ggcccagcag aactagctga ctgcttgaaa    480
ggtgttgatg ttgtcgtcat ccctgcgggt gtcccaagga agccaggcat gaccctgat    540
gaccttttta acatcaatgc gggcatcgtc aagtcgctta ttgaggctgt tgcagacaac    600
tgccctgagg cttcatcca tatcatcagc aaccgggtca actccactgt gccgattgct    660
gctgagattc tgaaacagaa gggcgtctac aacccaaga agctcttcgg ggtttccacc    720
ctggatgttg tcagagctaa cacatttgta gtcagaaga agaacct                        767

```

<210> 177
 <211> 701
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (637)..(637)
 <223> n is a, c, g, or t

```

<400> 177
gggggcgcac gcacaattcc catctgctca ccaaccatt ggagatggca tcagctgtta    60
ccatcagctc agtcagcgcg caggccgctt tggctctgaa accaaggaat catggcagca    120

```

```

caagctacag tggcctaaag gcatcatcat cgtcgatcag cttcgaatca gggacatcat      180
tcctggggcaa gaccgcctct cttcggggcga ctatcacctc aaggattgtg ccaaaggcaa      240
agtctgggtc tcagatatca cccaggcct cgtacaaggt ggcggtgctt ggtgctgccg      300
gtggcatcgg tcaaccactg ggcctgctga tcaagatgtc tcctctgggtc tcagagctgc      360
gcctgtatga tattgccaat gtcaagggag tcgctgcaga tctcagccac tgcaacacgc      420
cttctcaggt catggacttc actggcccag cagaactagc tgactgcttg aaagggtgtg      480
atgttgctgt catccctgcg ggtgtcccaa ggaagccagg catgaccctg gatgaccttt      540
ttaacatcaa tgcgggcatc gtcaagtcgc ttattgaggc tgttgccagac aactgccctg      600
aggccttcat ccatatcatc agcaaccggg tcaactncac tgtgccgatt gctgctgaga      660
ttctgaaaca gaagggcgctc tacagcccca agaagctctt a                          701

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```

<210> 178
<211> 333
<212> DNA
<213> Lolium perenne

```

```

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (17)..(17)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (33)..(33)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (281)..(281)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (293)..(293)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (297)..(297)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (303)..(303)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (327)..(327)
<223> n is a, c, g, or t

```

```

<400> 178

```

```

ncagcagcaa ttccctnctg cccaccaacc canttggaca tggcatcagc tgtcaccatc      60
agttcagtca gcgcccaggc cgctctggtg tcaaaaccaa ggagtcattg cagcacgagc      120
ttcagtggcc tgaaggcatc atcatcgtcg atcagcttcg aatctggaac atcattcctg      180
ggcaagactg cctctcttcg ggcgtcagtc accccgagga ttgtgccaaa ggcaaagtct      240
gggtctcaga tatcgccctc ggcattctac aagggtggcgg ngcttggtgc tgnccgngggc      300
atnggccaac cactgggcct gctgatnaag atg                                     333

```

<210> 179
 <211> 630
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> n is a, c, g, or t

```

<400> 179
gncacnacat tccccnnctg cccaccaacc canttggaaat ggcattcagct gtcaccatca      60
gttcagtcag cgcccaggcc gctctggtgt caaaaccaag gagtcattgg agcacgagct      120
tcagtggcct gaaggcatca tcattcgtcg tcagcttcga atctggaaca tcattcctgg      180
gcaagactgc ctctcttcgg gcgtcagtc ccccgaggat tgtgccaaag gcaaagtctg      240
gggtctcagat atcgccctcag gcatcttaca aggtggcggg gcttggtgct gccgggtggca      300
tcgggtcaacc actgggcctg ctgatcaaga tgctgcctct ggtctcggag ctgcgcctgt      360
atgatattgc gaatgtcaag ggcgtcgtcg ccgatctcag cactgcaac acgcctgctc      420
aggtcatgga cttcactggc ccgcggaac tagcagagtg cttgaaaggc gtggatgttg      480
tcgtcatccc tgcggtgtc ccaaggaagc caggcatgac ccgtgatgac ctttttaaca      540
tcaatgcggg catcgtcaag tcgcttatcg aggctgttgc agacaactgc cctgaggcct      600
tcatccatat tatcagcaac ccggtcaact                                     630

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<210> 180
 <211> 671
 <212> DNA
 <213> *Lolium perenne*

<220>
 <221> misc_feature
 <222> (467)..(467)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (617)..(617)
 <223> n is a, c, g, or t

<400> 180
 tctgcccacc aacccaagtt ggacatggca tcagctgtca ccatcagttc agtcagcgcc 60
 caggccgctc tgggtgtcaaa accaaggagt catggcagca cgagcttcag tggcctgaag 120
 gcatcatcat cgtcgatcag cttcgaatct ggaacatcat tcctgggcaa gactgcctct 180
 cttcgggcgt cagtcacccc gaggattgtg ccaaaggcaa agtctgggtc tcagatatcg 240
 cctcaggcat cttacaaggt ggcggtgctt ggtgctgccg gtggcatcgg tcaaccactg 300
 ggcctgctga tcaagatgtc gcctctgggtc tcggagctgc gcctgtatga tattgcgaat 360
 gtcaagggcg tcgctgccga tctcagccac tgcaacacgc ctgctcaggt catggacttc 420
 actggccccg cggaactagc agagtgttg aaaggcgtgg atgttgncgt catccctgcg 480
 ggtgtcccaa ggaagccagg catgacccgt gatgacctt ttaacatcaa tgcgggcatc 540
 gtcaagtcgc ttatcgaggc tgttgacagc aactgccctg aggccttcac ccatattatc 600
 agcaaccgg tcaactncac ggtgccgatt gctgcagaga ttctgaaaca gaagggcgtc 660
 tacaacccca a 671

<210> 181
 <211> 634
 <212> DNA
 <213> *Lolium perenne*

<400> 181
 ttggtgctgc tgggtggcatc ggtcaaccac tgggcctgct gatcaagatg tctcctctcg 60
 tctcggaagt ggcctgtat gatatcgcca atgtcaaggg agtcgctgca gatctcagcc 120
 actgcaacac gcctgctcag gccatggact tcaactggccc cgcggaacta gcagagtgtc 180
 tgaaagggtg ggatgttgct gtcattccctg cgggtgtccc aaggaagcct ggcattgactc 240
 gtgatgacct ttttaacatc aatgcgggca tcgtcaagtc gcttattgag gctgttgacg 300
 acaactgccc agaggccttc atccatatca tcagcaacc cgtcaactcc actgtgccga 360
 ttgctgctga gattctgaaa cagaagggtg tctacaaccc caagaagctc ttcgggggtt 420
 ccaccctgga tgtgtgcaga gctaacacat ttgtagctca gaagaagaac ctcagcctca 480
 tcgatgttga tgtcccagtt gtcgggtggcc atgctgggat cacgattctg cctctgttgt 540
 ccaagactag gccttctgtc agcttcacgg acgaggaaac tgaacagctg acaaagagga 600
 tacagaacgc tgggacagag gtggtggagg cgaa 634

<210> 182
 <211> 777

<212> DNA
<213> *Lolium perenne*

<220>
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<223> n is a, c, g, or t

<220>
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<222> (756)..(756)
<223> n is a, c, g, or t

<400> 182
gatcagccct gcaacacgcc tgctcaggcc atggacttca ctggccccgc ggaactagca 60
gagtgcctga aaggtgtgga tggtgtcgtc atccctgcgg gtgtcccaag gaagcctggc 120
atgactcgtg atgacctttt taacatcaat gcgggcatcg tcaagtcgct tattgaggct 180
gttgacgaca actgcccaga ggccttcatc catatcatca gcaacccggg caactccact 240
gtgccgattg ctgctgagat tctgaaacag aaggggtgtct acaaccccaa gaagctcttc 300
ggggtttcca ccctggatgt tgctcagagct aacacatttg tagctcagaa gaagaacctc 360
agcctcatcg atgttgatgt cccagttgtc ggtggccatg ctgggatcac gattctgcct 420
ctgttggtcca agactaggcc ttctgtcagc ttcacggacg aggaaactga acagctgaca 480
aagaggatac agaacgctgg gacagaggcg gtggaggcga aggctggtgc tggctctgct 540
actctgtcca tggcttatgc cgctgccaga tttgttgagt catcgctccg cgcaatggct 600
ggtgatccag atgtttacga gtgcacgtat gttcagtcgt agttaacaga gcttccattc 660
ttcgcgtcca gagttaagct tgggaaggac gnggttgagt ccatcatttc ctccgacctg 720
gagggagtga cggagtacga ggccaaggcg cttgangcat tgaaggctga gctgaag 777

<210> 183
<211> 414
<212> DNA
<213> *Lolium perenne*

<220>
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<223> n is a, c, g, or t

<220>
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<222> (9)..(10)
<223> n is a, c, g, or t

<220>
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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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 <222> (360)..(360)
 <223> n is a, c, g, or t

<220>
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 <222> (394)..(394)
 <223> n is a, c, g, or t

<220>
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 <222> (405)..(405)
 <223> n is a, c, g, or t

<220>
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 <222> (409)..(409)
 <223> n is a, c, g, or t

<400> 183	
gnaaacagnn gcgnccttttc ctncantggt gccgtgcaat cgctganaag tatccagaaa	60
tcatatacga ggaagtaatt attgataact gctgtatgac gctcgtgaag aaccctggta	120
cgtttgatgt attagtgatg ccaaattctat atggcgacat tattagtgat ctatgtgctg	180
gtttgatcgg aggcttgggc ctaactccca gctgcaacat tgggtgaaggt ggcatttgtc	240
ttgcagaggc tgtccatggc tctgcacctg atatatctgg caagaacctg gcaaacccaa	300
ctgctcttat gctgagtgt gttatgatgt tgcgccactt gcaattnaac gaccaagcan	360
aacgatcca caatgctatc ctccagacta tcgncgaggg gaagnacana actg	414

<210> 184
 <211> 137
 <212> PRT
 <213> Lolium perenne

<220>
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 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (7)..(8)
 <223> Xaa can be any naturally occurring amino acid

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 <223> Xaa can be any naturally occurring amino acid

<220>
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 <223> Xaa can be any naturally occurring amino acid

<220>
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 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (131)..(131)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (135)..(136)
 <223> Xaa can be any naturally occurring amino acid

<400> 184

Lys Gln Xaa Xaa Leu Phe Xaa Xaa Cys Cys Arg Ala Ile Ala Xaa Lys
 1 5 10 15

Tyr Pro Glu Ile Ile Tyr Glu Glu Val Ile Ile Asp Asn Cys Cys Met
 20 25 30

Thr Leu Val Lys Asn Pro Gly Thr Phe Asp Val Leu Val Met Pro Asn
 35 40 45

Leu Tyr Gly Asp Ile Ile Ser Asp Leu Cys Ala Gly Leu Ile Gly Gly
 50 55 60

Leu Gly Leu Thr Pro Ser Cys Asn Ile Gly Glu Gly Gly Ile Cys Leu
 65 70 75 80

Ala Glu Ala Val His Gly Ser Ala Pro Asp Ile Ser Gly Lys Asn Leu
 85 90 95

Ala Asn Pro Thr Ala Leu Met Leu Ser Ala Val Met Met Leu Arg His
 100 105 110

Leu Gln Xaa Asn Asp Gln Ala Xaa Arg Ile His Asn Ala Ile Leu Gln
 115 120 125

Thr Ile Xaa Glu Gly Lys Xaa Xaa Thr
 130 135

<210> 185
 <211> 652
 <212> DNA
 <213> Lolium perenne

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<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
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 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
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 <222> (12)..(13)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (646)..(646)
 <223> n is a, c, g, or t

<400> 185
 gncaccncca gnnacaactc tggtacctca attgctactc cacacctcac tacttctacc 60
 aatccactac acagcttcga gctaccccgcc ccccgcaatc caaactacct ctccctagca 120
 aatctacaac atgaaggcag tcgtagctgg agccgccggt ggcattggac agccattgtc 180
 cctcctcctt aagacctgcc cgctcgtcac tgagctcgcc ctatacgatg tcgtcaacgc 240
 cgtcggtgtc gcgactgacc tctcccatc ctctcgccc gcgaaagtaa ccggctacct 300
 gccggcaaat gacggtatgc agcaggctct cactggcgcc gacatcgtgg tcatcccgcc 360
 tggatttccc cgcaagcccg gcatgacccg tgacgacctc ttcaagatca acgccggcat 420
 tgtccagggt ctcacgagg gtgtcgccaa gactgcccc aaggcatacg ttctcgcat 480
 ctccaacccc gtcaactcga ctgtgcccac cgccgccgag gtgctgaaga aggccggtgt 540
 cttcgacccc aagaagctct tcggtgtcac caccctcgat gtcgtccgcg ccgagacctt 600
 cgttgccgag atcactggcg agaaggaccc agcgaagttg aacatncccg ta 652

<210> 186
 <211> 216
 <212> PRT
 <213> Lolium perenne

<220>
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 <222> (1)..(2)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (214)..(214)
 <223> Xaa can be any naturally occurring amino acid

<400> 186
 Xaa Xaa Pro Xaa Thr Thr Leu Val Pro Gln Leu Leu Leu His Thr Ser

1 5 10 15

Leu Leu Leu Pro Ile His Tyr Thr Ala Ser Ser Tyr Pro Ala Pro Ala
20 25 30

Ile Gln Thr Thr Ser Pro Gln Ile Tyr Asn Met Lys Ala Val Val Ala
35 40 45

Gly Ala Ala Gly Gly Ile Gly Gln Pro Leu Ser Leu Leu Lys Thr
50 55 60

Cys Pro Leu Val Thr Glu Leu Ala Leu Tyr Asp Val Val Asn Ala Val
65 70 75 80

Gly Val Ala Thr Asp Leu Ser His Ile Ser Ser Pro Ala Lys Val Thr
85 90 95

Gly Tyr Leu Pro Ala Asn Asp Gly Met Gln Gln Ala Leu Thr Gly Ala
100 105 110

Asp Ile Val Val Ile Pro Ala Gly Ile Pro Arg Lys Pro Gly Met Thr
115 120 125

Arg Asp Asp Leu Phe Lys Ile Asn Ala Gly Ile Val Gln Gly Leu Ile
130 135 140

Glu Gly Val Ala Lys His Cys Pro Lys Ala Tyr Val Leu Val Ile Ser
145 150 155 160

Asn Pro Val Asn Ser Thr Val Pro Ile Ala Ala Glu Val Leu Lys Lys
165 170 175

Ala Gly Val Phe Asp Pro Lys Lys Leu Phe Gly Val Thr Thr Leu Asp
180 185 190

Val Val Arg Ala Glu Thr Phe Val Ala Glu Ile Thr Gly Glu Lys Asp
195 200 205

Pro Ala Lys Leu Asn Xaa Pro Val
210 215

<210>	187
<211>	769
<212>	DNA
<213>	<i>Lolium perenne</i>

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<223> n is a, c, g, or t
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<222> (31)..(31)
 <223> n is a, c, g, or t

<220>
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 <222> (149)..(149)
 <223> n is a, c, g, or t

<220>
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 <222> (624)..(624)
 <223> n is a, c, g, or t

<220>
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 <222> (669)..(669)
 <223> n is a, c, g, or t

<400> 187
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 gaaggatgct ggccgtttct ctgctggttg gcacttgtag aaagctcaag aggagcttat 120
 taaggttgct gagacgtttg ggggttaagnt gactatgttt catggacgag ggggtactgt 180
 tggaagaggt ggcggcccta cccatcttgc tatactgtca caacctccag atactgtcca 240
 tggatcactt cgggtaactg ttcaagggtga agtcattgag cagtccttcg gagaggagca 300
 tttgtgtttt agaacgcttc aacgttttac agctgctact cttgaacatg gtatgcatcc 360
 accaatctca cctaaaccag aatggcgtgc tttgatggat gaaatggctg ttgttgccac 420
 agaggaatac cgttccattg ttttccaaga accaagattt gttgagtatt tccgccttgc 480
 aacaccagag ctcgagtatg gtaggatgaa tattggaagc aggccatcaa aacgtaagcc 540
 aagcggagga atcgaatcat tgcgtgcaat tccttgata tttgcttgga cacagactag 600
 attccacctg ccagtgtggc ttgnttttgg tgcggccttc aagcatgtcc tgcaaaagga 660
 cattcgtant cttcaaattc ttcagcagat gtacaacgag tggccgttta gggttaccat 720
 aaacctgggt gagatggtgt ttgccaaggg cgatccaggt atagcagct 769

<210> 188
 <211> 256
 <212> PRT
 <213> Lolium perenne

<220>
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 <222> (1)..(1)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (10)..(10)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature
 <222> (208)..(208)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (223)..(223)
 <223> Xaa can be any naturally occurring amino acid

<400> . 188

Xaa Thr Arg Asn Arg Ile Asn Gly Lys Xaa Glu Val Met Ile Gly Tyr
 1 5 10 15

Gln His Ser Gly Lys Asp Ala Gly Arg Phe Ser Ala Gly Trp His Leu
 20 25 30

Tyr Lys Ala Gln Glu Glu Leu Ile Lys Val Ala Glu Thr Phe Gly Val
 35 40 45

Lys Xaa Thr Met Phe His Gly Arg Gly Gly Thr Val Gly Arg Gly Gly
 50 55 60

Gly Pro Thr His Leu Ala Ile Leu Ser Gln Pro Pro Asp Thr Val His
 65 70 75 80

Gly Ser Leu Arg Val Thr Val Gln Gly Glu Val Ile Glu Gln Ser Phe
 85 90 95

Gly Glu Glu His Leu Cys Phe Arg Thr Leu Gln Arg Phe Thr Ala Ala
 100 105 110

Thr Leu Glu His Gly Met His Pro Pro Ile Ser Pro Lys Pro Glu Trp
 115 120 125

Arg Ala Leu Met Asp Glu Met Ala Val Val Ala Thr Glu Glu Tyr Arg
 130 135 140

Ser Ile Val Phe Gln Glu Pro Arg Phe Val Glu Tyr Phe Arg Leu Ala
 145 150 155 160

Thr Pro Glu Leu Glu Tyr Gly Arg Met Asn Ile Gly Ser Arg Pro Ser
 165 170 175

Lys Arg Lys Pro Ser Gly Gly Ile Glu Ser Leu Arg Ala Ile Pro Trp
 180 185 190

Ile Phe Ala Trp Thr Gln Thr Arg Phe His Leu Pro Val Trp Leu Xaa
 195 200 205

Phe Gly Ala Ala Phe Lys His Val Leu Gln Lys Asp Ile Arg Xaa Leu
 210 215 220

Gln Ile Leu Gln Gln Met Tyr Asn Glu Trp Pro Phe Arg Val Thr Ile

225 230 235 240

Asn Leu Val Glu Met₂₄₅ Val Phe Ala Lys Gly₂₅₀ Asp Pro Gly Ile Ala₂₅₅ Ala

<210>	189
<211>	1640
<212>	DNA
<213>	<i>Lolium perenne</i>

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<220>
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<222> (24)..(24)
<223> n is a, c, g, or t
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<220>
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<222> (31)..(31)
<223> n is a, c, g, or t
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<220>
<221> misc_feature
<222> (192)..(192)
<223> n is a, c, g, or t
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<223> n is a, c, g, or t
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<220>
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<222> (1514)..(1514)
<223> n is a, c, g, or t
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<223> n is a, c, g, or t
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<220>
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<223> n is a, c, g, or t
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<220>
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<222> (1616)..(1616)
<223> n is a, c, g, or t
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<220>
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<222> (1622)..(1622)
<223> n is a, c, g, or t
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<220>
<221> misc_feature
<222> (1633)..(1633)
<223> n is a, c, g, or t
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<400> 189
gaagaagtgt ctgatgtttt aagnacattt ntgtccttgc agagctccca gcagattggt 60
ttggtgctta catcatctca atggcaactg ccccatctga tgtgcttgct gttgagcttt 120

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tgcagcggga gtgcatata aaaaagccat tgagagttgt tccactattt gaaaagcttg 180
cagatcttga ancagctcca gcatctgttg cacgactatt ttcaatagac tggtagatga 240
atagaatcaa tggcaagcag gaggtcatga ttggatactc agactctggg aaggacgctg 300
ggcgtctctc tgcagcgtgg caaatgtata aagcacaaga agatctcata aagggtggcaa 360
agcaatatgg agtaaagtta acaatgtttc atggaagagg tggaaagggtt ggcagaggag 420
gtgggtcccag tcatcttgct atattatctc aaccaccaga cacgatacaa ggatcacttc 480
gtgtaacagt tcaaggcgag gtcataagag actcatttgg agaggaacac ttgtgcttca 540
gaactctgca acgttttact gcagctactc ttgagcatgg aatgcaccc ccaatttcac 600
ccaagccaga atggcgtgct ataatggatg agatggctgt agtggcaaca aaagaatatc 660
gatcaattgt cttccaagaa ccacgttttg tcgaatactt ccgctcggca acacctgaga 720
ctgaatatgg tcggatgaat attggtagcc ggccatcaaa gagaaagcct agtggaggca 780
tagaatcgct ccgtgcaatt ccatggatct ttgcttggac acagacaagg tttcatcttc 840
ctgtatggct tggatttggg gcagcgttca aacatatcat gcagaaggac atcaggaata 900
tccatactct gaaagaaatg tacaatgagt ggccattctt tagggtcacc cttgacttgc 960
ttgagatggg ttttgccaag ggagatccag gaattgctgc tttatatgac aaattgcttg 1020
tgtctgaaga tctgcagccc tttggggagc agctgagaaa caactttgaa gagacgaaac 1080
agttactcct tcaggttgct ggccacaagg acgttcttga aggggaccc tacctgaagc 1140
agcgtctgcg gttgcgtgag tcatacatca caacattgaa tgtttgccaa gccnacacc 1200
tgaagcggat aagagaccct agcttcgagg tgacaccgca gcaggcacct ctgtcgaagg 1260
agttcgtgta tgagaaggag ccagctgagc tggtgcaact gaaccgtggg agcgagtacg 1320
ccccaggcct ggaggacacc ctcacacctt ccatgaaggg tatttgctgt ggaatgcaaa 1380
acacaggcta ggccagtttg cctatttgga ataactgtca tcccgtcaga tggggcgtga 1440
atatgtgtgt tccccaaatg ctagtgaacc ctggaggcat tttggccact tacatgcctt 1500
ttggttatgg atgnactttg atcttaatgn caagggttgt tgaagcctga tctaaataaa 1560
atatggaaca atgatattct ggtnggatct aataatttgc ttggctctgg catcgnaata 1620
gngatttgga gtngtttaac 1640

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<210> 190
<211> 462
<212> PRT
<213> Lolium perenne

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<220>
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<223> Xaa can be any naturally occurring amino acid

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<220>
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<222> (8)..(8)
<223> Xaa can be any naturally occurring amino acid

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<220>
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 <222> (10)..(10)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (64)..(64)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (398)..(398)
 <223> Xaa can be any naturally occurring amino acid

<400> 190

Arg Ser Cys Xaa Cys Phe Lys Xaa Ile Xaa Val Leu Ala Glu Leu Pro
 1 5 10 15

Ala Asp Cys Phe Gly Ala Tyr Ile Ile Ser Met Ala Thr Ala Pro Ser
 20 25 30

Asp Val Leu Ala Val Glu Leu Leu Gln Arg Glu Cys His Ile Lys Lys
 35 40 45

Pro Leu Arg Val Val Pro Leu Phe Glu Lys Leu Ala Asp Leu Glu Xaa
 50 55 60

Ala Pro Ala Ser Val Ala Arg Leu Phe Ser Ile Asp Trp Tyr Met Asn
 65 70 75 80

Arg Ile Asn Gly Lys Gln Glu Val Met Ile Gly Tyr Ser Asp Ser Gly
 85 90 95

Lys Asp Ala Gly Arg Leu Ser Ala Ala Trp Gln Met Tyr Lys Ala Gln
 100 105 110

Glu Asp Leu Ile Lys Val Ala Lys Gln Tyr Gly Val Lys Leu Thr Met
 115 120 125

Phe His Gly Arg Gly Gly Thr Val Gly Arg Gly Gly Gly Pro Ser His
 130 135 140

Leu Ala Ile Leu Ser Gln Pro Pro Asp Thr Ile Gln Gly Ser Leu Arg
 145 150 155 160

Val Thr Val Gln Gly Glu Val Ile Glu His Ser Phe Gly Glu Glu His
 165 170 175

Leu Cys Phe Arg Thr Leu Gln Arg Phe Thr Ala Ala Thr Leu Glu His
 180 185 190

Gly Met His Pro Pro Ile Ser Pro Lys Pro Glu Trp Arg Ala Ile Met
 195 200 205

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Asp Glu Met Ala Val Val Ala Thr Lys Glu Tyr Arg Ser Ile Val Phe
 210 215 220
 Gln Glu Pro Arg Phe Val Glu Tyr Phe Arg Ser Ala Thr Pro Glu Thr
 225 230 235 240
 Glu Tyr Gly Arg Met Asn Ile Gly Ser Arg Pro Ser Lys Arg Lys Pro
 245 250 255
 Ser Gly Gly Ile Glu Ser Leu Arg Ala Ile Pro Trp Ile Phe Ala Trp
 260 265 270
 Thr Gln Thr Arg Phe His Leu Pro Val Trp Leu Gly Phe Gly Ala Ala
 275 280 285
 Phe Lys His Ile Met Gln Lys Asp Ile Arg Asn Ile His Thr Leu Lys
 290 295 300
 Glu Met Tyr Asn Glu Trp Pro Phe Phe Arg Val Thr Leu Asp Leu Leu
 305 310 315 320
 Glu Met Val Phe Ala Lys Gly Asp Pro Gly Ile Ala Ala Leu Tyr Asp
 325 330 335
 Lys Leu Leu Val Ser Glu Asp Leu Gln Pro Phe Gly Glu Gln Leu Arg
 340 345 350
 Asn Asn Phe Glu Glu Thr Lys Gln Leu Leu Leu Gln Val Ala Gly His
 355 360 365
 Lys Asp Val Leu Glu Gly Asp Pro Tyr Leu Lys Gln Arg Leu Arg Leu
 370 375 380
 Arg Glu Ser Tyr Ile Thr Thr Leu Asn Val Cys Gln Ala Xaa Thr Leu
 385 390 395 400
 Lys Arg Ile Arg Asp Pro Ser Phe Glu Val Thr Pro Gln Gln Ala Pro
 405 410 415
 Leu Ser Lys Glu Phe Ala Asp Glu Lys Glu Pro Ala Glu Leu Val Gln
 420 425 430
 Leu Asn Arg Gly Ser Glu Tyr Ala Pro Gly Leu Glu Asp Thr Leu Ile
 435 440 445
 Leu Thr Met Lys Gly Ile Cys Cys Gly Met Gln Asn Thr Gly
 450 455 460
 <210> 191
 <211> 697

<212> DNA
<213> *Lolium perenne*

<220>
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<223> n is a, c, g, or t

<220>
<221> misc_feature
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<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (192)..(192)
<223> n is a, c, g, or t

<220>
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<222> (541)..(541)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (616)..(616)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (632)..(632)
<223> n is a, c, g, or t

<220>
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<222> (643)..(643)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (670)..(670)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (685)..(685)
<223> n is a, c, g, or t

<220>
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<222> (691)..(691)
<223> n is a, c, g, or t

<220>
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<223> n is a, c, g, or t

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<400> 191
gaagaagttg ctgatgtttt aagnacattt ntgtccttgc agagctccca gcagattggt      60
ttggtgctta catcatctca atggcaactg ccccatctga tgtgcttgct gttgagcttt      120
tgcagcggga gtgccatata aaaaagccat tgagagttgt tccactattt gaaaagcttg      180
cagatcttga ancagctcca gcatctgttg cacgactatt ttcaatagac tggtagatga      240

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atagaatcaa tggcaagcag gaggtcatga ttggatactc agactctggg aaggacgctg	300
ggcgtctctc tgcagcgtgg caaatgtata aagcacaaga agatctcata aagggtggcaa	360
agcaatatgg agtaaagtta acaatgtttc atggaagagg tggaacggtt ggcagaggag	420
gtggtcccag tcatcttgct atattatctc aaccaccaga cacgatacaa ggatcacttc	480
gtgtaacagt tcaaggcgag gtcatagagc actcatttgg agaggaacac ttgtgcttca	540
naactctgca acgtttcact gcagctactc ttgagcatgg aatgcacctt ccaatttccc	600
ccaaaccaga atggcntgct ataatggatg anatggctgt agnggcacca aaagaaaatc	660
gatcaattgn cttccaagaa cccnttttg ncnaata	697

<210> 192
 <211> 785
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (732)..(732)
 <223> n is a, c, g, or t

<220>
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 <222> (758)..(758)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (777)..(777)
 <223> n is a, c, g, or t

<400> 192	
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gtttcatgga agaggtggaa cggttggcag aggaggtggt cccagtcac tttgctatatt	120
atctcaacca ccagacacga tacaaggatc acttcgtgta acagttcaag gcgagggtcat	180
agagcactca tttggagggg aacacttggt cttcagaact ctgcaacgtt tcaactgcagc	240
tactcttgag catggaatgc atcctccaat ttcacccaag ccagaatggc gtgctataat	300
ggatgagatg gctgtagtgg caacaaaaga atatcgatca attgtcttcc aagaaccacg	360
ttttgtcgaa tacttccgct cggcaacacc tgagactgaa tatggtcgga tgaatattgg	420
tagccggcca tcaaagagaa agcctagtgg aggcatagaa tcgctccgtg caattccatg	480
gatctttgct tggacacaga caaggtttca tcttcctgta tggcttgat ttggtgcagc	540
gttcaaacat atcatgcaga aggacatcag gaatatccat actctgaaag aaatgtacaa	600
tgagtggcca ttcttttaggg tcacccttga cttgcttgag atggtttttg ccaagggaga	660
tccaggaatt gctgctttat atgacaaatt gcttgtgtct gaagatctgc agccctttgg	720
ggagcagctg anaaacaact ttgaagagac gaaacaghta ctctttaagg ttgttgncca	780
caagg	785

<210> 193
 <211> 783
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (8)..(8)
 <223> n is a, c, g, or t

<400> 193
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 ttatctcaac cactagacac gatacaagga tcacttcgtg taacagttca aggcgagggtc 120
 atagagcact catttgaggaga ggaacacttg tgcttcagaa ctctgcaacg tttcactgca 180
 gctactcttg agcatggaat gcatcctcca atttcaccca agccagaatg gcgtgctata 240
 atggatgaga tggctgtagt ggcaacaaaa gaatatcgat caattgtctt ccaagaacca 300
 cgttttgtcg aatacttccg ctcggaaca cctgagactg aatatgggtcg gatgaatatt 360
 ggtagccggc catcaaagag aaagcctagt ggaggcatag aatcgctccg tgcaattcca 420
 tggatctttg cttggacaca gacgagggtt catcttcctg tatggcttgg atttggtgca 480
 gcgttcaaac atatcatgca gaaggacatc aggaatatcc atactctgaa agaaatgtac 540
 aatgagtggc cattcttttag ggtcaccctt gacttgcttg agatgggttt tgccaaggga 600
 gatccaggga ttgctgcttt atatgacaaa ttgcttggtg ctgaagatct gcagcccttt 660
 ggggagcagc tgagaaacaa ctttgaagag acgaaacagt tactccttca ggttgctggc 720
 cacaaggacg ttcttgaagg ggatccttac ctgaagcagc gtctgcgggt gcgtgagtca 780
 tac 783

<210> 194
 <211> 764
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <222> (4)..(4)
 <223> n is a, c, g, or t

<400> 194
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 gatcacttcg tgtaacagtt caaggcgagg tcatagagca ctcatcttga gaggaacact 120
 tgtgcttcag aactctgcaa cgtttcactg cagctactct tgagcatgga atgcatcctc 180
 caatttcacc caagccagaa tggcgtgcta taatggatga gatggctgta gtggcaacaa 240
 aagaatatcg atcaattgtc ttccaagaac cacgttttgt cgaatacttc cgctcggcaa 300
 cacctgagac tgaatatggt cggatgaata ttggtagccg gccatcaaag agaaagccta 360
 gtggaggcat agaatcgctc cgtgcaattc catggatctt tgcttgagca cagacaagggt 420
 ttcatcttcc tgtatggctt ggatttggtg cagcgttcaa acatatcatg cagaaggaca 480

tcaggaatat ccatactctg aaagaaatgt acaatgagtg gccattcttt agggtcaccc 540
 ttgacttgct tgagatgggt tttgccgagg gagatccagg aattgctgct ttatatgaca 600
 aattgcttgt gtctgaagat ctgcagccct ttggggagca gctgagaaac aactttgaag 660
 agacgaaaca gttactcctt caggttgctg gccacaagga cgttcttgag ggggatcctt 720
 acctgaagca gcgtctgcgg ttgcgtgagt catacatcac aaca 764

<210> 195
 <211> 666
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
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 <222> (81)..(81)
 <223> n is a, c, g, or t

<220>
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 <222> (538)..(538)
 <223> n is a, c, g, or t

<220>
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 <222> (542)..(542)
 <223> n is a, c, g, or t

<220>
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 <222> (557)..(557)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (610)..(610)
 <223> n is a, c, g, or t

<220>
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 <222> (642)..(642)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (648)..(648)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (659)..(659)
 <223> n is a, c, g, or t

<400> 195
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 tctgcagccc tttggggagc ngctgagaaa caactttgaa gagacgaaac agttactcct 120

tcaggttgct ggccacaagg acgttcttga aggggatcct tacctgaagc agcgtctgcg 180
 gttgcgtgag tcatacatca caacattgaa tgtttgccaa gcctacaccc tgaagcggat 240
 aagagaccct agcttcgagg tgacaccgca gcaggcacct ctgtcgaagg agttcgctga 300
 tgagaaggag ccagctgagc tgggtgcaact gaaccgtggg agcgagtacg cccagggcct 360
 ggaggacacc ctcatcctta ccatgaaggg tattgctgtg gaatgcaaaa cacaggctag 420
 gccagtttgc ctattggaat aactgtcatt ccgtcagatg gggcgtgaat atgtgtgttc 480
 cccaaatgct agtgaaccct ggaggcattt tggccactta catgcctttt ggttatgnat 540
 gnacttgatc ttaatgncaa gggttgttga agcctgatct aaataaaata tggaacaatg 600
 atattctggn ggatctaata atttgcttgg ctctggcatc gnaatagnga tttggagtng 660
 tttaac 666

<210> 196
 <211> 482
 <212> DNA
 <213> *Lolium perenne*

<220>
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 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (404)..(404)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (424)..(424)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (448)..(448)
 <223> n is a, c, g, or t

<400> 196
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 cacaacattg aatgtttgcc aagcgnncac cctgaagcgg ataagagacc ctagcttcga 120
 ggtgacaccg cagcaggcac ctctgtcgaa ggagttcgct gatgagaagg agccagctga 180
 gctggtgcaa ctgaaccgtg ggagcgagta cgccccaggc ctggaggaca ccctcatcct 240
 taccatgaag ggtatttgct gtggaatgca aaacacaggc taggccagtt tgcctatttg 300
 gaataactgt catcccgta gatgggcgtg aatatgtgtg ttcccaaata gctagtgaac 360
 cctggaggca tttggccact tacatgcctt ttggttatgg atgnactttg atcttaatgt 420
 caanggttgt tgaagcctga tctaaatnaa atatggaaca atgatattct ggttgtttct 480
 ta 482

<210> 197

<211> 224
<212> DNA
<213> Lolium perenne

<220>
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<222> (5)..(5)
<223> n is a, c, g, or t

<220>
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<222> (11)..(11)
<223> n is a, c, g, or t

<220>
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<222> (15)..(15)
<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<222> (34)..(34)
<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<222> (177)..(177)
<223> n is a, c, g, or t

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<222> (180)..(180)
<223> n is a, c, g, or t

<220>
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<222> (183)..(183)
<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

<220>
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<222> (205)..(205)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (213)..(213)

<223> n is a, c, g, or t

<220>

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<222> (222)..(222)

<223> n is a, c, g, or t

<400> 197

agcantctgt ncttnccanc aaccacgttt tgtncgaata cttncgctc ggcaacacct 60

gcacactgaa tatggtcggc atgaatattg gtagccggcc atcaaagaga aagcctagt 120

gaggcataga atcgctccgt gcaattccat gcattcttgn ttggacacag acaaggnttn 180

atnttcctgt atgncttгна ttcgntcca ccnccacccc cnta 224

<210> 198

<211> 73

<212> PRT

<213> Lolium perenne

<220>

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<222> (1)..(1)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (5)..(6)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (11)..(11)

<223> Xaa can be any naturally occurring amino acid

<220>

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<222> (14)..(14)

<223> Xaa can be any naturally occurring amino acid

<220>

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<222> (53)..(53)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (59)..(61)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (64)..(64)

<223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (66)..(66)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (68)..(68)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (71)..(71)
 <223> Xaa can be any naturally occurring amino acid

<400> 198

Xaa Ser Xaa Leu Xaa Xaa Asn His Val Leu Xaa Glu Tyr Xaa Pro Leu
 1 5 10 15

Gly Asn Thr Cys Thr Leu Asn Met Val Gly Met Asn Ile Gly Ser Arg
 20 25 30

Pro Ser Lys Arg Lys Pro Ser Gly Gly Ile Glu Ser Leu Arg Ala Ile
 35 40 45

Pro Cys Ile Phe Xaa Trp Thr Gln Thr Arg Xaa Xaa Xaa Pro Val Xaa
 50 55 60

Leu Xaa Phe Xaa Ser Thr Xaa Thr Pro
 65 70

<210> 199
 <211> 527
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (4)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<400> 199
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 cgtgacgcgt acatcaccac catgaacgta tgccaggcct acacattgaa gcggatccgt 120
 gaccagact accacgtcgc actgcggccc catctttcca aggaggttat ggacacaagc 180
 aagccggctt ccgagcttgt gacgctgaac ccggccagcg agtacgcccc ggggctggag 240
 gacaccctca tcttgaccat gaagggcggt gctgccgggtc tgcaaaacac cggttagggc 300
 caggagagat gcctgatcac catctttttg tatcttcatg atgatgcat gtttttcttt 360
 agtcgtttgc ggtgggcctt atatctctcg gacgtagctg catctgtctc cctgctcagt 420

gaggaataat ggcgtttcgc ccaagtatat tgataaataa agggaaccga tgtaatttc 480
 agatttgttt gttagtaatt gttctattta ttttgcgaaa aaaaaaa 527

<210> 200
 <211> 98
 <212> PRT
 <213> Lolium perenne

<220>
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 <222> (2)..(2)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> Xaa can be any naturally occurring amino acid

<400> 200

Val Xaa Gly Xaa Lys Asp Leu Leu Glu Gly Asp Pro Tyr Leu Lys Gln
 1 5 10 15

Arg Leu Arg Leu Arg Asp Ala Tyr Ile Thr Thr Met Asn Val Cys Gln
 20 25 30

Ala Tyr Thr Leu Lys Arg Ile Arg Asp Pro Asp Tyr His Val Ala Leu
 35 40 45

Arg Pro His Leu Ser Lys Glu Val Met Asp Thr Ser Lys Pro Ala Ser
 50 55 60

Glu Leu Val Thr Leu Asn Pro Ala Ser Glu Tyr Ala Pro Gly Leu Glu
 65 70 75 80

Asp Thr Leu Ile Leu Thr Met Lys Gly Val Ala Ala Gly Leu Gln Asn
 85 90 95

Thr Gly

<210> 201
 <211> 450
 <212> DNA
 <213> Lolium perenne

<220>
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 <222> (31)..(31)
 <223> n is a, c, g, or t

<220>
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 <222> (302)..(302)
 <223> n is a, c, g, or t

<220>

<221> misc_feature
 <222> (368)..(368)
 <223> n is a, c, g, or t

<220>
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 <222> (375)..(375)
 <223> n is a, c, g, or t

<220>
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 <222> (382)..(382)
 <223> n is a, c, g, or t

<220>
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 <222> (393)..(393)
 <223> n is a, c, g, or t

<220>
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 <222> (413)..(413)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (417)..(418)
 <223> n is a, c, g, or t

<220>
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 <222> (420)..(420)
 <223> n is a, c, g, or t

<220>
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 <222> (422)..(422)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (426)..(426)
 <223> n is a, c, g, or t

<220>
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 <222> (445)..(445)
 <223> n is a, c, g, or t

<400> 201
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 atagaagatc tgatgtttga gctctctatg tggcgctgca gtgatgaact taggggtccgt 120
 gcagatgaag tacatctgtc ctcaaaaaaa aaatctgcaa agcattacat agagttctgg 180
 aagcaagttc ctccaaatga accttatcgt gtcatacttg gcgatgtcag ggataaactg 240
 tactatacgc gcgaacgttc tcgccacata ttgacaactg gaatttcaga cattccagaa 300
 gngtcaactt ttactaatgt tgaactgttt ctggaacctc ttgagctgtg ctacagatcc 360
 ttatcttnct gtgnggacaa anctattgct ganggaagcc ttcttgattt ctngcgnnnc 420
 gnactnactt tgtgggctta ctctngcgaa 450

<210> 202

<211> 150
 <212> PRT
 <213> Lolium perenne

<220>
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 <222> (11)..(11)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (101)..(101)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (123)..(123)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (125)..(125)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (128)..(128)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (131)..(131)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (138)..(142)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (149)..(149)
 <223> Xaa can be any naturally occurring amino acid

<400> 202

Val Thr Arg Ala Val Cys Leu Leu Ala Arg Xaa Met Ala Ala Asn Leu
 1 5 10 15

Tyr Phe Ser Gln Ile Glu Asp Leu Met Phe Glu Leu Ser Met Trp Arg
 20 25 30

Cys Ser Asp Glu Leu Arg Val Arg Ala Asp Glu Val His Leu Ser Ser
 35 40 45

Lys Lys Lys Ser Ala Lys His Tyr Ile Glu Phe Trp Lys Gln Val Pro
 50 55 60

Pro Asn Glu Pro Tyr Arg Val Ile Leu Gly Asp Val Arg Asp Lys Leu
 65 70 75 80

Tyr Tyr Thr Arg Glu Arg Ser Arg His Ile Leu Thr Thr Gly Ile Ser

<400> 203	gggggtggtgg	ccctnctcac	cttgcctncc	tgtctcancc	accagncaca	atcaacggat	60
	cactccgggt	gactgttcaa	ggtgaagtta	ttgagcagag	ctttggggag	gaacacttgt	120
	gcttcaggac	gctgcagcgt	ttcacagctg	ctactcttga	gcatgggatg	cgtccacca	180
	tttcaccaa	gccagagtgg	cgagctcttc	ttgatgagat	ggctgtggtt	gcaactgagg	240
	aataccggtc	aatcgtcttc	caagaaccac	gcttcgctga	gtatttccgc	cttgcaacac	300
	cagagacaga	gtatggcagg	atgaatatag	gaagcaggcc	atcaaagaga	aaaccaagtg	360
	gtggcattga	atcactccgt	gcaattccat	ggatcttcgc	atggacgcag	acacggttcc	420
	accttccagt	ctggttgggc	tttggtggtg	cattcaagca	tatcctcaag	aaggacatca	480
	gaaatttcca	tatgctccag	gagatgtaca	acgagtggcc	atttttcagg	gtcacgatcg	540
	atcttgttga	gatggtgttc	gccaagggta	accctggcat	tgctgccttg	tatgacaggc	600
	tcctgggtttc	agaggagcta	cagccactgg	gtgacaagct	gagg		644

A

<210> 204
 <211> 214
 <212> PRT
 <213> Lolium perenne

<220>
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 <222> (5)..(5)
 <223> xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> xaa can be any naturally occurring amino acid

<220>
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 <222> (12)..(12)
 <223> xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (15)..(15)
 <223> xaa can be any naturally occurring amino acid

<400> 204

Gly Gly Gly Pro Xaa His Leu Ala Xaa Leu Ser Xaa Pro Pro Xaa Thr
 1 5 10 15

Ile Asn Gly Ser Leu Arg Val Thr Val Gln Gly Glu Val Ile Glu Gln
 20 25 30

Ser Phe Gly Glu Glu His Leu Cys Phe Arg Thr Leu Gln Arg Phe Thr
 35 40 45

Ala Ala Thr Leu Glu His Gly Met Arg Pro Pro Ile Ser Pro Lys Pro
 50 55 60

Glu Trp Arg Ala Leu Leu Asp Glu Met Ala Val Val Ala Thr Glu Glu
 65 70 75 80

Tyr Arg Ser Ile Val Phe Gln Glu Pro Arg Phe Val Glu Tyr Phe Arg
 85 90 95

Leu Ala Thr Pro Glu Thr Glu Tyr Gly Arg Met Asn Ile Gly Ser Arg
 100 105 110

Pro Ser Lys Arg Lys Pro Ser Gly Gly Ile Glu Ser Leu Arg Ala Ile
 115 120 125

Pro Trp Ile Phe Ala Trp Thr Gln Thr Arg Phe His Leu Pro Val Trp
 130 135 140

Leu Gly Phe Gly Gly Ala Phe Lys His Ile Leu Lys Lys Asp Ile Arg
 145 150 155 160

Asn Phe His Met Leu Gln Glu Met Tyr Asn Glu Trp Pro Phe Phe Arg
 165 170 175

Val Thr Ile Asp Leu Val Glu Met Val Phe Ala Lys Gly Asn Pro Gly
 180 185 190

Ile Ala Ala Leu Tyr Asp Arg Leu Leu Val Ser Glu Glu Leu Gln Pro
 195 200 205

Leu Gly Asp Lys Leu Arg
 210

<210> 205
 <211> 674
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (15)..(15)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (623)..(623)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (645)..(645)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (649)..(649)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (656)..(656)
 <223> n is a, c, g, or t

<400> 205
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 atggccaaag acccagttcg tggtcttgct actggtgctg caggacaaat tgggtatgct 120
 cttgtcccta tgattgctag gggagtgatg ctgggccctg accagcctgt gatcctccac 180
 atgcttgaca ttccacctgc agccgaatca ctcaacggtg ttaaaatgga gttggtggat 240
 gctgcattcc ctcttcttaa aggagttggt gctacaactg atgtggttga ggcattgcact 300
 ggtgtcaata ttgccgttat ggttggtggg ttccctagaa aagaaggat ggagaggaaa 360
 gatgtgatga caaaaaatgt ctctatttac aagtctcagg cttctgccct tgaaaaacat 420
 gctgtgcaa actgcaaggt tcttggtggt gccaacccag caaacaccaa tgcattgatc 480
 ttgaagggaat atgctccatc cattcctgag aaaaacattt ctgctttgac tagattggac 540
 cataacaggg cactaggtca aatttctgaa agactaaacg ttgaagtttc tgatgtgaaa 600

N

aatgttataa tatgggggaa atnattcatc aactcaatac cctgntgtna accacncaac 660
cgttaaaatc tcct 674

<210> 206
<211> 201
<212> PRT
<213> Trifolium repens

<220>
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<222> (188)..(188)
<223> xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (195)..(195)
<223> xaa can be any naturally occurring amino acid

<220>
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<222> (197)..(197)
<223> xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (199)..(199)
<223> xaa can be any naturally occurring amino acid

<400> 206

Met Ala Lys Asp Pro Val Arg Val Leu Val Thr Gly Ala Ala Gly Gln
1 5 10 15

Ile Gly Tyr Ala Leu Val Pro Met Ile Ala Arg Gly Val Met Leu Gly
20 25 30

Pro Asp Gln Pro Val Ile Leu His Met Leu Asp Ile Pro Pro Ala Ala
35 40 45

Glu Ser Leu Asn Gly Val Lys Met Glu Leu Val Asp Ala Ala Phe Pro
50 55 60

Leu Leu Lys Gly Val Val Ala Thr Thr Asp Val Val Glu Ala Cys Thr
65 70 75 80

Gly Val Asn Ile Ala Val Met Val Gly Gly Phe Pro Arg Lys Glu Gly
85 90 95

Met Glu Arg Lys Asp Val Met Thr Lys Asn Val Ser Ile Tyr Lys Ser
100 105 110

Gln Ala Ser Ala Leu Glu Lys His Ala Ala Ala Asn Cys Lys Val Leu
115 120 125

Val Val Ala Asn Pro Ala Asn Thr Asn Ala Leu Ile Leu Lys Glu Tyr
130 135 140

M

Ala Pro Ser Ile Pro Glu Lys Asn Ile Ser Ala Leu Thr Arg Leu Asp
 145 150 155 160

His Asn Arg Ala Leu Gly Gln Ile Ser Glu Arg Leu Asn Val Glu Val
 165 170 175

Ser Asp Val Lys Asn Val Ile Ile Trp Gly Lys Xaa Phe Ile Asn Ser
 180 185 190

Ile Pro Xaa Cys Xaa Pro Xaa Asn Arg
 195 200

<210> 207
 <211> 202
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (40)..(41)
 <223> n is a, c, g, or t

<220>
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 <222> (91)..(91)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (156)..(156)
 <223> n is a, c, g, or t

<220>
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 <222> (165)..(166)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (177)..(177)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (193)..(193)
 <223> n is a, c, g, or t

<400> 207
 gtnttcttgn aaacncncta atntcttttc tattgtncn ntttcttcga tctatttcca 60
 atggccaaag acccagttcg tggtctgtc nctggtgctg caggacaact tgggtatgct 120
 cttgtcccta tgattgctag gggagtgatg ctcggnctg accannctgt gatcctncac 180
 atgcttgaca ttncacctgg ag 202

<210> 208
 <211> 559
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> n is a, c, g, or t

<400> 208
 gcnacntata acctctttnt nctnacctct attgttctta tttcttcgat ctatatccaa 60
 tggccaaaga cccagttcgt gttcttgtca ctggtgctgc aggacaaatt gggatgctc 120
 tcgtccctat gattgctagg ggagtgatgc tcggccctga ccagcctgtg atcctccaca 180
 tgcttgacat cccacctgca gccgaatcac tgaacggtgt aaaaatggag ttggtggatg 240
 ctgcattccc tcttcttaaa ggagttgttg ctaccactga tgtggttgag gcatgcactg 300

gggtcaatat tgccgttatg gttggcgggt tccctagaaa agaaggatat gagaggaaag 360
 atgtgatgac aaaaaatgtc tctatttaca agtctcaggc ttctgccctt gaaaaacatg 420
 ctgctgcaaa ctgcaagggt cttgttggtg ccaaccagc aaacaccaat gcattgatct 480
 tgaaggaata tgctccatcc attcctgaga aaaacatttc tgctttgact agattggacc 540
 ataacagggc acttggtca 559

<210> 209
 <211> 567
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<400> 209
 gcntcttaaa accactaaac tcttttctat tgttcttatt tcttcgatct atttccaatg 60
 gccaaagacc cagttcgtgt tcttgtcact ggtgctgcag gacaaattgg gtatgctctt 120
 gtccctatga ttgctagggg agtgatgctc ggccctgacc agcctgtgat cctccacatg 180
 cttgacattc cacctgcagc cgaatcactc aacggtgtta aaatggagtt ggtggatgct 240
 gcattccctc ttcttaaagg agttgttgct acaactgatg tggttgaggc atgactgggt 300
 gtcaatattg ccgttatggt tgggtgggtc cctagaaaag aaggatatgga gaggaaagat 360
 gtgatgacaa aaaatgtctc tatttacaag tctcaggctt ctgcccttga aaaacatgct 420
 gctgcaaact gcaaggttct tgttggtgcc aaccagcaa acaccaatgc attgatcttg 480
 aaggaatatg ctccatccat tcctgagaaa aacatttctg ctttgactag attggaccat 540
 aacagggcac taggtcaaat ttctgaa 567

<210> 210
 <211> 575
 <212> DNA
 <213> Trifolium repens

<400> 210
 gcatcttaaa accactaaac tcttttctat tgttcttatt tcttcgatct atttccaatg 60
 gccaaagacc cagttcgtgt tcttgtcact ggtgctgcag gacaaattgg gtatgctctt 120
 gtccctatga ttgctagggg agtgatgctc ggccctgacc agcctgtgat cctccacatg 180
 cttgacattc cacctgcagc cgaatcactg aacggtgtta aaatggagtt ggtggatgct 240
 gcattccctc ttcttaaagg agttgttgct acaactgatg tggttgaggc atgactgggt 300
 gtcaatattg ccgttatggt tgggtgggtc cctagaaaag aaggatatgga gaggaaagat 360
 gtgatgacaa aaaatgtctc tatttacaag tctcaggctt ctgcccttga aaaacatgct 420
 gctgcaaact gcaaggttct tgttggtgcc aaccagcaa acaccaatgc attgatcttg 480
 aaggaatatg ctccatccat tcctgagaaa aacatttctg ctttgactag attggaccat 540

aacagggcac taggtcaa¹at ttctgaaaga ctaaa

575

<210> 211
 <211> 606
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<400> 211
 cttcttnaaa ccactaaact cttttctatt gttcttattt cttcgatcta tttccatggc 60
 caaagaccca gttcgtgttc ttgtcactgg tgctgcagga caacttgggt atgctcttgt 120
 ccctatgatt gctaggggag tgatgctcgg ccctgaccag cctgtgatcc tccacatgct 180
 tgacattcca cctgcagccg aatcactcaa cgggtgttaa atggagttgg tggatgctgc 240
 attccctctt cttaaaggag ttgttgctac aactgatgtg gttgagggcat gcactgggtgt 300
 caatattgcc gttatgggtg gtgggttccc tagaaaagaa ggtatggaga ggaaagatgt 360
 gatgacaaaa aatgtctcta tttacaagtc tcaggcttct gcccttgaaa aacatgctgc 420
 tgcaaaactgc aaggttcttg ttgttgccaa cccagcaaac accaatgcat tgatcttgaa 480
 ggaatatgct ccattccattc ctgagaaaaa catttctgct ttgactagat tggaccataa 540
 cagggcacta ggtcaaattt ctgaaagact aaacgttgaa gtttctgatg tgaaaaatgt 600
 tataat 606

<210> 212
 <211> 344
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (54)..(54)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (300)..(300)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (311)..(311)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (317)..(317)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (321)..(321)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (327)..(327)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (329)..(329)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (333)..(333)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (335)..(335)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (343)..(343)
 <223> n is a, c, g, or t

<400> 212
 cnttaaaacn cactaaactc ttttctattg ttcttatttc ttcgatctat ttcnatggcc 60
 aaagaccag ttcgtgttct tgctactggt gctgcaggac aacttgggta tgctcttgct 120
 cctatgattg ctaggggagt gatgctcggc cctgaccagc ctgtgatcct ccacatgctt 180
 gacattccac ctgcagccga atcactcaac ggtgttaaaa tggagttggt ggatgctgca 240
 ttccctcttc ttaaaggagt tggtgctaca actgatgtgg ttgaggcatg cactggtgtn 300
 aatattgacg ntatggntgg ngggttncnt acnanacaac gtnt 344

<210> 213
 <211> 558
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature

<222> (27)..(27)

<223> n is a, c, g, or t

<400> 213

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gcantaaact cttttntatt gttcttnttt cttcgatcta tttccatggc caagacccag      60
ttcgtgttct tgtcactggg gctgcaggac aaattgggta tgctcttgct cctatgattg      120
ctaggggagt gatgctcggc cctgaccagc ctgtgatcct ccacatgctt gacattccac      180
ctgcagccga atcactcaac ggtgttaaaa tggagttggg ggatgctgca ttccctcttc      240
ttaaaggagt tgttgctaca actgatgtgg ttgaggcatg cactgggtgtc aatattgccg      300
ttatggttgg tgggttccct agaaaagaag gtatggagag gaaagatgtg atgacaaaaa      360
atgtctctat ttacaagtct caggcttctg cccttgaaaa acatgctgct gcaactgca      420
aggttcttgt tgttgccaac ccagcaaaca ccaatgcatt gatcttgaag gaatatgctc      480
catccattcc tgagaaaaac atttctgctt tgactagatt ggaccataac agggcactag      540
gtcaaatttc tgaaagac                                     558

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<210> 214

<211> 599

<212> DNA

<213> *Trifolium repens*

<220>

<221> misc_feature

<222> (4)..(4)

<223> n is a, c, g, or t

<400> 214

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gcantaaact cttttctatt gttcttattt cttcgatcta tttccatggc caagacccag      60
ttcgtgttct tgtcctgggt ctgcaggaca aattgggtat gctcttggtc ctatgattgc      120
taggggagtg atgctcggcc ctgaccagcc tgtgatcctc cacatgcttg acattccacc      180
tgcagccgaa tcactcaacg gtgttaaaat ggagttgggt gatgctgcat tccctcttct      240
taaaggagtt gttgctacaa ctgatgtggg tgaggcatgc actgggtgtc atattgccgt      300
tatggttggg ggggttcccta gaaaagaagg tatggagagg aaagatgtga tgacaaaaaa      360
tgtctctatt tacaagtctc aggcttctgc ccttgaaaaa catgctgctg caaactgcaa      420
ggttcttggg gttgccaaac cagcaaacac caatgcattg atcttgaagg aatatgctcc      480
atccattcct gagaaaaaca tttctgcttt gactagattg gaccataaca gggcactagg      540
tcaaatttct gaaagactaa acgttgaagt ttctgatgtg aaaaatgtta taatctggg      599

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<210> 215

<211> 577

<212> DNA

<213> *Trifolium repens*

<220>

<221> misc_feature

<222> (24)..(24)

<223> n is a, c, g, or t

A

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<400> 215
cactaactct tttctttggt cttntttctt cgatcatttc catggccaag acccagttcg      60
tgttcttgta ctggtgctgc aggacaactt ggggatgctc ttgtccctat gattgctagg      120
ggagtgatgc tcggccctga ccagcctgtg atcctccaca tgcttgacat tccacctgca      180
gccgaatcac tcaacggtgt taaaatggag ttggtggatg ctgcattccc tcttcttaaa      240
ggagtgtgtg ctacaactga tgtggttgag gcatgcactg gtgtcaatat tgccgttatg      300
gttggtgggt tccctagaaa agaaggatg gagaggaaag atgtgatgac aaaaaatgtc      360
tctatttaca agtctcaggc ttctgccctt gaaaaacatg ctgctgcaaa ctgcaagggt      420
cttggtgttg ccaaccagc aaacaccaat gcattgatct tgaaggaata tgctccatcc      480
attcctgaga aaaacatttc tgctttgact agattggacc ataacagggc actaggtcaa      540
atttctgaaa gactaaacgt tgaagtttct gatgtggg      577

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<210> 216
<211> 594
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (10)..(10)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (23)..(23)
<223> n is a, c, g, or t

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<400> 216
taaactcttn tctattgttc ttntttcttc gatctatttc catggccaag acccagttcg      60
tgttcttgtc actggtgctg caggacaaat tgggatgctc cttgtcccta tgattgctag      120
gggagtgatg ctcggccctg accagcctgt gatcctccac atgcttgaca ttccacctgc      180
agccgaatca ctcaacggtg ttaaaatgga gttggtggat gctgcattcc ctcttcttaa      240
aggagtgtgt gctacaactg atgtggttga ggcattgact ggtgtcaata ttgccgttat      300
ggttggtggg ttccctagaa aagaaggatg ggagaggaaa gatgtgatga caaaaaatgt      360
ctctatttac aagtctcagg cttctgccct tgaaaaacat gctgctgcaa actgcaagggt      420
tcttggtgtt gccaacccag caaacaccaa tgcattgatc ttgaaggaat atgctccatc      480
cattcctgag aaaaacattt ctgctttgac tagattggac cataacaggg cactaggtca      540
aatttctgaa agactaaacg ttgaagtttc tgatgtgaaa aatgttataa tctg      594

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<210> 217
<211> 653
<212> DNA
<213> Trifolium repens

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<220>

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<221> misc_feature
<222> (319)..(319)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (327)..(327)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (387)..(387)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (432)..(432)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (480)..(480)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (490)..(490)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (501)..(501)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (546)..(546)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (552)..(552)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (570)..(570)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (602)..(602)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (624)..(624)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (628)..(628)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (635)..(635)
<223> n is a, c, g, or t

1

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<400> 217
aaactctttt ctattgttct tatttcttcg atctatttcc aatggccaaa gaccagttc      60
gtgttcttgt cactggtgct gcaggacaaa ttgggtatgc tcttgtccct atgattgcta      120
ggggagtgat gctcggccct gaccagcctg tgatcctcca catgcttgac attccacctg      180
cagccgaatc actcaacggt gttaaaatgg agttggtgga tgctgcattc cctcttctta      240
aaggagttgt tgctacaact gatgtggttg aggcattgcac tgggtgtcaat attgccgtta      300
tggttggtgg gttccctana aaagaangta tggagaggaa agatgtgatg acaaaaatgt      360
ctctattttac aagtcttaag cttttgncct tgaaaaacat gctgctgcaa actgcaaggt      420
tcttgttggt gncaaccacac caaacaccaa tgcattgatc ttgaaggaat atgctccatn      480
cattcctgan aaaaacattt ntgctttgac tagattggac cataacaggg cactagggga      540
aatttntgaa anactaaacg ttgaagtttn tgatgtgaaa aatgttatat atggggggaaa      600
tnattcatca actcaatacc ctgntgtnaa ccacncaacc gttaaaatct cct          653

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<210> 218
<211> 1111
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (14)..(15)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (20)..(20)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (27)..(27)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (55)..(55)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (66)..(66)
<223> n is a, c, g, or t

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<400> 218
ttctccana atcnngaaan cgcccanaca tcacacaaca taacacctta ctctnctttc      60
tctctnaaca aaaactgttc ttcctctctt aatcttccct gttcgattcc ttccatttct      120
tcaaaaatgg ccaaagaccc agttcgtggt ctcgtcactg gtgctgcagg gcaaattggg      180

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tatgcacttg tccctatgat tgctagggga gtgatgcttg gtcctgatca acctgtgatc 240
 cttcacatgc ttgatattcc tccagcagca gagtcattga atggaggttaa gatggagttg 300
 gtcgatgctg catttccact tcttaaaggt gttgttgcta caactgatgt tgttgaagca 360
 tgcactggag tcaatattgc agtcatgggt ggtggattcc caagaaaaga aggtatggag 420
 aggaaggatg tgatgtctaa gaacgtctct atttacaagt cccaggcttc tgcccttgaa 480
 aagcatgctg ctgccaaactg caagggtttg gttgttgcta acccagcaaa caccaatgca 540
 ttgatcttga aggaatttgc tccatctatt ccagagaaaa acatttcttg tttgactaga 600
 cttgatcaca acagggcatt gggccaaatt tctgaaagat tgaatgttca agtttctgat 660
 gtaaagaatg tcattatctg gggtaatcat tcatcaactc agtatcctga tgtcaaccat 720
 gcaactgtta acacccccgc tggggagaag cctgtccgtg agcttgtttc tgatgacgcc 780
 tggttgaatg gagaattcat atctaccgtt caacaacgtg gtgctgcaat tattaaggct 840
 agaaagcttt caagcgctact atccgctgct agcgctgctt gcgaccacat tcgcgattgg 900
 gttcttgga ctccccaggg caccttcgtt tcaatgggag tgtattctga tggttcttac 960
 aacgtaccag ctggactcat ctattcattc cctgtcacca ctgctaattg ggaatggaaa 1020
 attgttcaag gactttcaat tgacgagttc tcaaggaaga agttggactt gacagctgaa 1080
 gagttatccg aggaaaagag tttggcatac t 1111

<210> 219
 <211> 328
 <212> PRT
 <213> *Trifolium repens*

<400> 219

Met Ala Lys Asp Pro Val Arg Val Leu Val Thr Gly Ala Ala Gly Gln
1 5 10 15

Ile Gly Tyr Ala Leu Val Pro Met Ile Ala Arg Gly Val Met Leu Gly
20 25 30

Pro Asp Gln Pro Val Ile Leu His Met Leu Asp Ile Pro Pro Ala Ala
35 40 45

Glu Ser Leu Asn Gly Val Lys Met Glu Leu Val Asp Ala Ala Phe Pro
50 55 60

Leu Leu Lys Gly Val Val Ala Thr Thr Asp Val Val Glu Ala Cys Thr
65 70 75 80

Gly Val Asn Ile Ala Val Met Val Gly Gly Phe Pro Arg Lys Glu Gly
85 90 95

Met Glu Arg Lys Asp Val Met Ser Lys Asn Val Ser Ile Tyr Lys Ser
100 105 110

Gln Ala Ser Ala Leu Glu Lys His Ala Ala Ala Asn Cys Lys Val Leu
 115 120 125
 Val Val Ala Asn Pro Ala Asn Thr Asn Ala Leu Ile Leu Lys Glu Phe
 130 135 140
 Ala Pro Ser Ile Pro Glu Lys Asn Ile Ser Cys Leu Thr Arg Leu Asp
 145 150 155 160
 His Asn Arg Ala Leu Gly Gln Ile Ser Glu Arg Leu Asn Val Gln Val
 165 170 175
 Ser Asp Val Lys Asn Val Ile Ile Trp Gly Asn His Ser Ser Thr Gln
 180 185 190
 Tyr Pro Asp Val Asn His Ala Thr Val Asn Thr Pro Ala Gly Glu Lys
 195 200 205
 Pro Val Arg Glu Leu Val Ser Asp Asp Ala Trp Leu Asn Gly Glu Phe
 210 215 220
 Ile Ser Thr Val Gln Gln Arg Gly Ala Ala Ile Ile Lys Ala Arg Lys
 225 230 235 240
 Leu Ser Ser Ala Leu Ser Ala Ala Ser Ala Ala Cys Asp His Ile Arg
 245 250 255
 Asp Trp Val Leu Gly Thr Pro Gln Gly Thr Phe Val Ser Met Gly Val
 260 265 270
 Tyr Ser Asp Gly Ser Tyr Asn Val Pro Ala Gly Leu Ile Tyr Ser Phe
 275 280 285
 Pro Val Thr Thr Ala Asn Gly Glu Trp Lys Ile Val Gln Gly Leu Ser
 290 295 300
 Ile Asp Glu Phe Ser Arg Lys Lys Leu Asp Leu Thr Ala Glu Glu Leu
 305 310 315 320
 Ser Glu Glu Lys Ser Leu Ala Tyr
 325

<210> 220
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 acccagttcg tgttctcgtc actggtgctg cagggcaaat tggttatgca cttgtcccta 180
 tgattgctag gggagtgatg cttggtcctg atcaacctgt gatcctacac atgcttgata 240
 ttccaccgc agcagagtca ttgaatggag ttaagatgga gatggncgat gctgnattnn 300
 cacttggttaa agngangct gct 323

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 <223> n is a, c, g, or t

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 ccagttcgtg ttctcgtcac tggtgctgca gggcaaattg gttatgcact tgtccctatg 180
 attgctaggg gagtgatgct tggtcctgat caacctgtga tcctacacat gcttgatatt 240
 ccaccgcag cagagtcatt gaatggagtt aagatggagt tggtcgatgc tgcatttcca 300
 cttgttaaag gtgntgatgn tacaactgat gatgngacg natnnnctgg 350

<210> 222
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<220>
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<223> n is a, c, g, or t

<400> 222

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tggtctcgtc actggtgctg caggccaaat tggttatgca cttgtcccta tgattgctag    180
gggagtgatg cttggtcctg atcaacctgt gatccttcac atgcttgata tccctccagc    240
agcagagtca ttgaatggag ttaaaatgga gttgggtggat gctgcatttc cacttcttaa    300
aggtgttggt gctacaactg atgttggtga agcatgcact ggagtcaata ttgcagtcac    360
ggttggtgga ttccaagaa aagaaggat ggagaggaag gatgtgatga ctaagaatgt    420
ctctattttac aagtcaccagg cttctgccct tgaaaagcat gctgctgcca actgcaaggc    480
tttggttatt gctaaccag caaataccaa tgcattgatc ttgaaggagt ttgctccatc    540
tattccagag aaaaacattt cagctttgac tagacttgat caca                    585

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<210> 223

<211> 593

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<213> *Trifolium repens*

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<223> n is a, c, g, or t

<400> 223

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cctcgttact ggtgctgcag gccaaattgg ttatgcactt gtccctatga ttgctagggg    180
agtgatgctt ggtcctgatc aacctgtgat cttcacatg cttgatatcc ctccagcagc    240
agagtcattg aatggagtta aaatggagtt ggtggatgct gcatttcac ttcttaaagg    300
cgttgttgct acaactgatg ttgttgaagc atgcactgga gtcaatattg cagtcattgg    360

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I

tggtggattc ccaagaaaag aaggatatgga gaggaaggat gtgatgacta agaatgtctc	420
tatttacaag tcccaggctt ctgcccttga aaagcatgct gctgccaact gcaaggtttt	480
ggttattgct aaccagcaa ataccaatgc attgatcttg aaggagtttg ctccatctat	540
tccagagaaa aacatttcag ctttgactag acttgatcac aacagggcat tgg	593

<210> 224
 <211> 531
 <212> DNA
 <213> *Trifolium repens*

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 <223> n is a, c, g, or t

<220>
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 <222> (28)..(28)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (39)..(39)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (520)..(520)
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<222> (528)..(528)

<223> n is a, c, g, or t

<400> 224

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ttaatcttcc ctgtttgatt ccttcctgttc ttcaaaaatg gccaaagacc cagttcgtgt      120
tctcgtcact ggtgctgcag ggcaaattgg ttatgcactt gtccctatga ttgctagggg      180
agtgatgctt ggtcctgatc aacctgtgat ccttcacatg cttgatattc ctccagcagc      240
agagtcattg aatggagtta agatggagtt ggtcgtatgct gcatttccac ttcttaaagg      300
tggttggtgct acaactgatg ttgttgaggc atgcactgga gtcaatattg cagtcattgg      360
tggtggattc ccaagaaaag aaggatgga gaggaaggat gtgatgtcta agaacgtctc      420
tatttacaag tcccaggctt ctgcccttga aaagcatgct gctgccaact gcaaggnttt      480
ggttgntgct aaccancaa caccaatgca ttgatcttgn aggaatcngc t                    531

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<210> 225

<211> 573

<212> DNA

<213> *Trifolium repens*

<220>

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<220>

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<222> (24)..(24)

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<222> (31)..(31)

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<222> (238)..(238)

<223> n is a, c, g, or t

<400> 225

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actggtgctg caggccaaat tggttatgca cttgtcccta tgattgctag gggagtgatg      180
cttggtcctg atcaacctgt gatccttcac atgcttgata tccctccagc agcagagnca      240
ttgaatggag ttaaaatgga gttggtggat gctgcatttc cacttcttaa aggcgttggt      300
gctacaactg atgttgttga agcatgcact ggagtcaata ttgcagtcac ggttggtgga      360
ttcccaagaa aagaaggatg ggagaggaag gatgtgatga ctaagaatgt ctctattttac      420
aagtcccagg cttctgccct tgaaaagcat gctgctgcca actgcaagggt tttggttatt      480
gctaaccagc caaataccaa tgcattgatc ttgaaggagt ttgctccatc tattccagag      540

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aaaaacattt cagctttgac tagacttgat cac

573

<210> 226
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 <213> Trifolium repens

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 <222> (24)..(24)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 tcgcggttcg attccttccg tttcttcagc aatggccaaa gaccagttc gtgtcctcgt 120
 tactggtgct gcaggccaaa ttggttatgc acttgctcct atgattgcta ggggagtgat 180
 gcttggtcct gatcaacctg tgatccttca catgcttgat atccctccag cagcagagtc 240
 attgaatgga gttaaaatgg agttggcgga tgctgcattt ccacttctta aaggcgttgt 300
 tgctacaact gatgttggtg aagcatgcac tggagtcaat attgcagtca tggttggtgg 360
 attccaaga aaagaaggta tggagaggaa ggatgtgatg actaagaatg tctctattta 420
 caagtcccag gcttcagccc ttgaaaagca tgctgctgcc aactgcaagg ttttggttat 480
 tgctaaccga gcaaatacca atgcattgat cttgaaggag tttgctccat ctattccaga 540
 gaaaaacatt tcagctttga ctagacttga tcacaacagg gcattggggcc aaatttctga 600
 aag 603

<210> 227
 <211> 597
 <212> DNA
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 <222> (20)..(21)
 <223> n is a, c, g, or t

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 <222> (24)..(24)
 <223> n is a, c, g, or t

<220>
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 <222> (29)..(30)
 <223> n is a, c, g, or t

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 actggtgctg caggccaaat tggttatgca cttgtcccta tgattgctag gggagtgatg 180
 cttggtcctg atcaacctgt gatccttcac atgcttgata tccctccagc agcagagtca 240
 ttgaatggag ttaaaatgga gttggtggat gctgcatttc cacttcttaa aggcgttggt 300
 gctacaactg atgttggtga agcatgcact ggagtcaata ttgcagtcac ggttggtgga 360
 ttccaagaa aagaaggat ggagaggaag gatgtgatga ctaagaatgt ctctatttac 420
 aagtcccagg cttctgccct tgaaaagcat gctgctgcca actgcaagg tttgggtatt 480
 gctaaccag caaataccaa tgcattgatc ttgaaggagt ttgctccac tattccagag 540
 aaaaacattt cagctttgac tagacttgat cacaacaggg cattgggcca aatttct 597

<210> 228
 <211> 333
 <212> DNA
 <213> Trifolium repens

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (332)..(333)
 <223> n is a, c, g, or t

<400> 228	
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ccttctatatt cttcaaaaat ggccaaagac ccagttcgtg ttctcgtcac tggtgctgca	120
ggccaaattg gttatgcact tgtccctatg attgctaggg gagtgatgct tggtcctgat	180
caacctgtga tccttgacat gcttgatatt gctgcagnag nagagtnatt gaatggagct	240
aaaatggagc tgccggatgc tgnattnnaa cttcttacag gcgccgccgc taccactgat	300
gctgccaac catgccctgc acccatatnc cnn	333

<210> 229
 <211> 567
 <212> DNA
 <213> Trifolium repens

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 <222> (18)..(18)
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<220>
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<222> (126)..(126)
 <223> n is a, c, g, or t

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 <222> (378)..(378)
 <223> n is a, c, g, or t

<220>
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 <222> (551)..(551)
 <223> n is a, c, g, or t

<400> 229
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 tcgattccctt ccacttcttc aaaaatggcc naagaccag ttcgtgttct cgtcactggt 120
 gctgcngggc aaattggtta tgcacttgct cctatgattg ctaggggagt gatgcttggt 180
 cctgatcaac ctgtgaccc acacatgctt gatattccac ccgcagcaga gtcattgaat 240
 ggagttaaga tggagtgggt cgatgctgca ttccacttc ttaaagggtg tgttgctaca 300
 actgatgttg ttgaggcatg cactggagtc aatatcgag tcattggttg tggattccca 360
 agaaaagaag gtatgganag gaaggatgtt atgtctaaga acgtctctat ttacaagtcc 420
 caagcttctg cccttgaaaa gcatgctgct gccaaactgca aggttttggt tgttgctaac 480
 ccagcaaaca ccaatgcatt gatcttgaag gaatttgctc catctattcc agagaaaaac 540
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<210> 230
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 <212> DNA
 <213> Trifolium repens

<220>
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<220>
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 <222> (27)..(27)
 <223> n is a, c, g, or t

<400> 230
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 gtttgattcc ttccagttct tcaaaaatgg ccaaagacc agttcgtgtt ctgcactg 120
 gtgctgcagg gcaaattggt tatgcacttg tccctatgat tgctagggga gtgatgcttg 180
 gtcctgatca acctgtgatc cttcacatgc ttgatattcc tccagcagca gagtcattga 240
 atggagttaa gatggagttg gtcgatgctg catttccact tcttaaagggt gttgttgcta 300
 caactgatgt tgttgaggca tgactggag tcaatattgc agtcattggt ggtggattcc 360
 caagaaaaga aggtatggag aggaaggatg tgatgtctaa gaacgtctct atttacaagt 420
 cccaggcttc tgcccttgaa aagcatgctg ctgccaactg caagggtttg gttgttgcta 480

accagcaac accaatgcat tgatcttgaa ggaatttgct ccatctattc cagagaaaaa 540
catttcttgt ttgactagac ttgatcacc 569

<210> 231
<211> 592
<212> DNA
<213> *Trifolium repens*

<220>
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<220>
<221> misc_feature
<222> (28)..(28)
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<220>
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<223> n is a, c, g, or t

<400> 231
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tggtcgattc cttccacttc ttcaaaaatg gccaaagacc cagttcgtgt tctcgtcact 120
gggtgctgcag ggcaaattgg ttatgcactt gtccctatga ttgctagggg agtgatgctt 180
ggtcctgatc aacctgtgat cctacacatg cttgatattc caccgcagc agagtcattg 240
aatggagtta agatggagtt ggtcgaatg gcatttcac ttcttaaagg tgttggtgct 300
acaactgatg ttgttgaggc atgcactgga gtcaatatcg cagtcatggt tgggtggattc 360
ccaagaaaag aaggtatgga gaggaaggat gttatgtcta agaacgtctc tatttacaag 420
tccaagctt ctgcccttga aaagcatgct gctgccaaact gcaagggtttt gggttggtgct 480
aaccagcaa acaccaatgc attgatcttg aaggaatttg ctccatctat tccagagaaa 540
aacatttctt gtttgactag acttgatcac aacagggcat tgggccaat tt 592

<210> 232
<211> 585
<212> DNA
<213> *Trifolium repens*

<220>
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<220>
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<223> n is a, c, g, or t

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 <222> (22)..(22)
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<220>
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 <223> n is a, c, g, or t

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 attccttccg tttcttcagc aatggccaaa gaccagttc gtttcctcgt tactggtgct 120
 gcaggccaaa ttggttatgc acttgctcct atgattgcta ggggagtgat gcttggtcct 180
 gatcaacctg tgatccttca catgcttgat atccctccag cagcagagtc attgaatgga 240
 gttaaaatgg agttggtgga tgctgcattt ccacttctta aaggcgttgt tgctacaact 300
 gatgttggtt aagcatgcac tggagtcaat attgcagtca tgggttggtg attcccaaga 360
 aaagaaggta tggagaggaa ggatgtgatg actaagaatg tctctattta caagtcccag 420
 gcttctgccc ttgaaaagca tgctgctgcc aactgcaagg ttttggttat tgctaaccga 480
 gcaaatacca atgcattgat cttgaaggag ttgctccat ctattccaga gaaaaacatt 540
 tcagctttga ctagacttga tcacaacagg gcattggggcc aaatt 585

<210> 233
 <211> 462
 <212> DNA
 <213> Trifolium repens

<220>
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<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (16)..(16)
 <223> n is a, c, g, or t

<220>
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 <222> (20)..(20)
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<220>
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 <222> (87)..(87)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (392)..(392)
 <223> n is a, c, g, or t

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cttctatttc ttcaaaaatg gccaaanacc cagttcgtgt tctcgtcact ggtgctgcag      120
gccaaattgg ttatgcactt gtccctatga ttgctagggg agtgatgctt ggtcctgatc      180
aacctgtgat ctttcacatg cttgatattc ctccagcagc agagtcattg aatggagtta      240
aaatggagtt ggtggatgct gcatttcac ttcttaaagg tggtgttgct acaactgatg      300
ttgttgaagc atgcactgga gtcaatattg cagtcatggt tggtggattc ccaagaaaag      360
aaggtatgga gaggaaggat gtgatgacta anaatgtctc tatttacaag tcccaggctt      420
ctgcccttga aaagcatgct gctgccaact gcaaggtttt gg                          462

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<210> 234
<211> 573
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (11)..(12)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (15)..(15)
<223> n is a, c, g, or t

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<400> 234
cactaaacct nncnctctc tctctaaaca aaactgttct tcctctctta atcttccctg      60
ttcgattcct tccacttctt caaaaatggc caaagacca gttcgtgttc tcgtcactgg      120
tgctgcaggg caaattgggt atgcacttgt ccctatgatt gctaggggag tgatgcttgg      180
tcctgatcaa cctgtgatcc tacacatgct tgatattcca cccgcagcag agtcattgaa      240
tgaggttaag atggagttgg tcgatgctgc atttccactt cttaaagggtg ttgttgctac      300
aactgatgtt gttgagggcat gactggagt caatatcgca gtcattggtg gtggattccc      360
aagaaaagaa ggtatggaga ggaaggatgt tatgtctaag aacgtctcta tttacaagtc      420
ccaagcttct gcccttgaaa agcatgctgc tgccaactgc aaggttttgg ttgttgctaa      480
cccagcaaac accaatgcat tgatcttgaa ggaatttgct ccatctattc cagagaaaaa      540
catttcttgt ttgactagac ttgatcaca cag                          573

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<210> 235
<211> 603
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

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<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (26)..(26)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (50)..(50)
 <223> n is a, c, g, or t

<400> 235
 gnaccacnta aaactnctnc tctctnaaca aaactgttct tcctctcttn atcttccctg 60
 tttgattcct tccgttcttc aaaaatggcc aaagaccag ttcgtgttct cgtcactggc 120
 gctgcagggc aaattgggta tgcacttgtc cctatgattg ctaggggagt gatgcttggt 180
 cctgatcaac ctgtgatcct acacatgctt gatattccac ccgcagcaga gtcattgaat 240
 ggagttaaga tggagttggt cgatgctgca tttccacttc ttaaagggtg tgttgctaca 300
 actgatgttg ttgagggcatg cactggagtc aatatcgag tcatgggttg tggattccca 360
 agaaaagaag gtatggagag gaaggatgtt atgtctaaga acgtctctat ttacaagtcc 420
 caagcttctg cccttgaaaa gcatgctgct gccaaactgca aggttttggt tgttgctaac 480
 ccagcaaaca ccaatgcatt gatcttgaag gaatttgctc catctattcc agagaaaaac 540
 atttcttggt tgactagact tgatcacaac agggcattgg gccaaatttc tgaaagattg 600
 aat 603

<210> 236
 <211> 550
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (462)..(462)

<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (482)..(482)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (532)..(532)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (545)..(545)
 <223> n is a, c, g, or t

<400> 236
 accacntaac cctcctnctc tcaaacaaaa actgttcttc cctcttaatc tccctgttc 60
 gattccttct atttcttcaa aaatggccaa agaccagtt cgtgttctcg tcaactggtgc 120
 tgcaggccaa attggttatg cacttggtccc tatgattgct aggggagtga tgcttggtcc 180
 tgatcaacct gtgatccttc acatgcttga tttcctcca gcagcagagt cattgaatgg 240
 agttaaaatg gagttggtgg atgctgcatt tccacttctt aaagggtgttg ttgctacaac 300
 tgatgttggt gaagcatgca ctggagtcaa tattgcagtc atggttggtg gattcccaag 360
 aaaagaaggt atggagagga aggatgtgat gactaagaat gtctctatctt acaagtccca 420
 ggcttctgcc cttgaaaagc atgctgctgc caactgcaag gntttgggta ttgctaacc 480
 ancaaatacc aatgcattga tcttgaagga gtttgctcca tctattccag anaaaaacat 540
 ttcanccttg 550

<210> 237
 <211> 591
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (15)..(15)
 <223> n is a, c, g, or t

<400> 237
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 attccttccg ttcttcaaaa atggccaaag acccagttcg tgttctcgtc actggtgctg 120
 cagggcaaatt tgggttatgca cttgtcccta tgattgctag gggagtgatg cttggctctg 180
 atcaacctgt gatccttcac atgcttgata ttcctccagc agcagagtca ttgaatggag 240

I

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ttaagatgga gttggtcgat gctgcatttc cacttcttaa aggtggtggt gctacaactg      300
atgttggtga ggcatgcact ggagtcaata ttgcagtcac gggtggtgga ttccaagaa      360
aagaaggtat ggagaggaag gatgtgatgt ctaagaacgt ctctatttac aagtcccagg      420
cttctgccct tgaaaagcat gctgctgcca actgcaagggt tttggttggt gctaaccag      480
caacaccaat gcattgatct tgaaggaatt tgctccatct attccagaga aaaacatttc      540
ttgtttgact agacttgatc acaacagggc attgggccaa atttctgaaa g              591

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<210> 238
<211> 571
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (4)..(4)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (16)..(17)
<223> n is a, c, g, or t

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<400> 238
gtancctcac tctctnnaac aaaaactggt cttccctctt aatcttccct gttcgattcc      60
ttctatttct tcaaaaatgg ccaaagaccc agttcgtggt ctcgtcactg gtgctgcagg      120
ccaaattggt tatgcacttg tccctatgat tgctagggga gtgatgcttg gtcctgatca      180
acctgtgatc cttcacatgc ttgatattcc tccagcagca gagtcattga atggagttaa      240
aatggagttg gtggatgctg catttccact tcttaaagggt gttgttgcta caactgatgt      300
tgttgaagca tgcactggag tcaatattgc agtcatgggt ggtggattcc caagaaaaga      360
aggatatggag aggaaggatg tgatgactaa gaatgtctct atttacaagt cccaggcttc      420
tgcccttgaa aagcatgctg ctgccaaactg caaggttttg gttattgcta acccagcaaa      480
taccaatgca ttgatcttga aggagtttgc tccatctatt ccagagaaaa acatttcagc      540
tttgactaga cttgatcaca acagggcatt g              571

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<210> 239
<211> 433
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (28)..(28)
<223> n is a, c, g, or t

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<220>
 <221> misc_feature
 <222> (358)..(358)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (386)..(386)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (402)..(402)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (404)..(406)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (409)..(409)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (413)..(413)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (416)..(416)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (430)..(430)
 <223> n is a, c, g, or t

<400> 239
 gcatctctna aacaaaaact gttcttcnct cttaatcttc cctgttcgat tccttctatt 60
 tcttcaaaaa tggccaaaga ccagttcgt gttctcgta ctggtgctgc aggccaaatt 120
 ggttatgcac ttgtccctat gattgctagg ggagtgatgc ttggtcctga tcaacctgtg 180
 atccttcaca tgcttgatat tcctccagca gcagagtcac tgaatggagt taaaatggag 240
 ttggtggatg ctgcatttcc acttcttaaa ggtgttggtg ctacaactga tggtgttgaa 300
 gcatgcactg gagtcaatat tgcagtcacg gttggtggat tcccaagaaa agaaggntg 360
 gagaggaagg atgtgatgac taagantgtc tctatttaca anannnagnc ttntgncctt 420
 gaaaaagatn ctg 433

<210> 240
 <211> 585
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (35)..(35)
 <223> n is a, c, g, or t

<400> 240
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 tcttcaaaaa tggccaaaga cccagttcgt gttctcgtca ctggtgctgc agggcaaatt 120
 ggttatgcac ttgtccctat gattgctagg ggagtgatgc ttggtcctga tcaacctgtg 180
 atccttcaca tgcttgatat tcctccagca gcagagtcac tgaatggagt taagatggag 240
 ttggtcgtatg ctgcatttcc acttcttaaa ggtgttggtg ctacaactga tggtgttgag 300
 gcatgcactg gagtcaatat tgcagtcacg gttgggtggat tcccaagaaa agaaggatg 360
 gagaggaagg atgtgatgtc taagaacgtc tctatttaca agtcccaggc ttctgccctt 420
 gaaaagcatg ctgctgccaa ctgcaagggt ttggttggtg ctaaccagc aaacaccaat 480
 gcattgatct tgaaggaatt tgctccatct attccagaga aaaacatttc ttgtttgact 540
 agacttgatc acaacagggc attgggcca aattctgaaa gattg 585

<210> 241
 <211> 610
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (30)..(30)
 <223> n is a, c, g, or t

<400> 241
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 caaaaatggc caaagacca gttcgtgttc tcgtcactgg tgctgcaggc caaattgggt 120
 atgcatttgt ccctatgatt gctaggggag tgatgcttgg tcctgatcaa cctgtgatcc 180
 ttcacatgct tgatattcct ccagcagcag agtcattgaa tggagttaaa atggagtgtg 240
 tggatgctgc atttccactt cttaaagggtg ttgttgctac aactgatgtt gttgaagcat 300
 gcatggagt caatattgca gtcattggtg gtggattccc aagaaaagaa ggtatggaga 360
 ggaaggatgt gatgactaag aatgtctcta ttacaagtc ccaggcttct gcccttgaaa 420
 agcatgctgc tgccaactgc aagggttttg ttattgctaa cccagcaa atccaatgcat 480
 tgatcttgaa ggagtttgct ccatctattc cagagaaaaa catttcagct ttgactagac 540
 ttgatcacia cagggcattg ggccaaattt ctgaaagatt gaatattcaa gtttctgatg 600
 taaagaatgt 610

<210> 242
 <211> 568
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (53)..(53)
 <223> n is a, c, g, or t

<400> 242
 caaaaactgc tcttcctctc ttnatcttcc ctgttcgatt ccttcccttc ttnaaaatgg 60
 ccaaagaccc agttcgtgtt ctcgtcactg gtgctgcagg gcaaattggg tatgcacttg 120
 tccctatgat tgctagggga gtgatgcttg gtcctgatca acctgtgatc ctacacatgc 180
 ttgatattcc acccgagca gattcattga atggagttaa gatggagttg gtcgatgctg 240
 catttccact tcttaaagggt gttgttgcta caactgatgt tgttgaggca tgcactggag 300
 tcaatatcgc agtcatgggt ggtggattcc caagaaaaga aggtatggag aggaaggatg 360
 ttatgtctaa gaacgtctct atttacaagt cccaagcttc tgcccttgaa aagcatgctg 420
 ctgccaaactg caaggttttg gttgttgcta acccagcaaa caccaatgca ttgatcttga 480
 aggaatttgc tccatctatt ccagagaaaa acatttcttg ttgactaga cttgatcaca 540
 acagggcatt gggccaaatt tctgaaaag 568

<210> 243
 <211> 558
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> n is a, c, g, or t

<400> 243
 aaaactgttc ttcctctctt natcttccct gttcgattcc ttcccttctt caaaaatggc 60
 caaagaccca gttcgtgttc tcgtcactgg tgctgcaggg caaattgggt atgcacttgt 120
 ccctatgatt gctaggggag tgatgcttgg tcctgatcaa cctgtgatcc tacacatgct 180
 tgatattcca cccgcagcag agtcattgaa tggagttaa atggagttgg tcgatgctgc 240
 atttccactt cttaaagggtg ttgttgctac aactgatgtt gttgaggcat gactggaggt 300
 caatatcgca gtcatgggtg gtggattccc aagaaaagaa ggtatggaga ggaaggatgt 360
 tatgtctaag aacgtctcta tttaacaagtc ccaagcttct gcccttgaaa agcatgctgc 420
 tgccaactgc aaggtttttg ttgttgctaa ccagcaaac accaatgcat tgatcttgaa 480
 ggaatttgct ccatctattc cagagaaaaa catttcttgt ttgactagac ttgatcacia 540

cagggcattg ggccaaat

558

<210> 244
 <211> 752
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<400> 244
 gnnttcttcc tctcttcaac ttccctgttt gattccttcc agttcttcaa aaatggccaa 60
 agacccagtt cgtgttctcg tctactggtgc tgcagggcaa attggttatg cacttgtccc 120
 tatgattgct aggggagtgat tgcttgggtcc tgatcaacct gtgatccttc acatgcttga 180
 tattcctaca gcagcagagt cattgaatgg agttaagatg gagttgggtcg atgctgcatt 240
 tccacttctt aaaggtgttg ttgctacaac tgatgttggt gaggcattgca ctggagtcaa 300
 tattgcagtc atggttggtg gattcccaag aaaagaaggt atggagagga aggatgtgat 360
 gtctaagaac gtctctatct acaagtcca ggcttctgcc cttgaaaagc atgctgctgc 420
 caactgcaag gttttggttg ttgctaacc agcaaacc aatgcattga tcttgaagga 480
 atttgctcca tctattccag agaaaaacat ttcttgtttg actagacctg atcacaacag 540
 ggcattgggc caaatttctg aaagattgaa tgttcaagtt tctgatgtaa agaattgcat 600
 tatctggggt aatcattcat caactcagta tctgatgtc aaccatgcaa ctgttaacac 660
 ccccgctggg gagaagcctg tccgtgagct tgtttctgat gacgcctggt tgaatggaga 720
 attcatatct accgttcaac aacgtggtgc tg 752

<210> 245
 <211> 583
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (46)..(46)
 <223> n is a, c, g, or t

<400> 245
 ggttcttccc tcttatnctt ccctgttcga ttccttctat ttcttnaaaa tggccaaaga 60
 cccagttcgt gttctcgtca ctggtgctgc aggccaaatt ggttatacac ttgtccctat 120
 gattgctagg ggagtgatgc ttggtcctga tcaacctgtg atccttcaca tgcttgatat 180
 tcctccagca gcagagtcac tgaatggagt taaaatggag ttggtggatg ctgcatttcc 240
 acttcttaaa ggtgttggtg ctacaactga tggtgttgaa gcatgcactg gactcaatat 300

1

tgcagtc	atg	gttgg	tggat	tccca	agaaa	agaag	gtatg	gagag	gaagg	atgtg	atgac	360
taaga	atgtc	tctatt	taca	agccc	caggc	ttctg	ccctt	gaaa	agcatg	ctgct	gcaa	420
ctgca	agg	ttggt	tattg	ctaacc	cagc	aaata	ccaat	gcatt	gatct	tgaag	gag	480
tgctc	catct	attcc	agaga	aaaac	atttc	agctt	tgact	agact	tgatc	acaac	agggc	540
attgg	gccaa	atttct	gaaa	gattg	aatat	tcaag	tttct	gat				583

<210> 246
 <211> 573
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<400>	246											60
ttcct	tctct	natct	tcct	gtttg	attcc	ttccg	ttctt	caaa	atggcc	aagac	ccag	120
tcgtg	ttctc	gtcact	ggtg	ctgcag	ggca	aattg	ggtat	gcact	tg	tcc	ctatg	180
taggg	gag	atgct	tggtc	ctgat	caacc	tgtg	atcct	cacat	gcttg	atatt	cttcc	240
agcag	cagag	tcatt	gaatg	gag	ttaag	atg	ggagt	tggtc	gatg	ctg	cat	300
taaag	gtgtt	gttg	ctacaa	ctgat	gttgt	tgagg	catgc	actg	gag	tca	atattg	360
catg	gttg	gtt	ggatt	cccaa	gaaa	agaagg	tatg	gagagg	aagg	atgtga	tgtcta	420
cgtct	ctatt	taca	agtccc	aggct	tctgc	ccttg	aaaag	catg	ctg	ctg	ccaactg	480
ggttt	tggtt	gttg	ctaacc	cagca	aacac	caatg	cattg	atctt	gaagg	aattt	gctcc	540
atctat	tcca	gagaaa	aaca	tttct	tggtt	gacta	gactt	gatca	caaca	gggc	attggg	573
ccaa	atttct	gaaag	attga	atgtt	caagt	ttc						

<210> 247
 <211> 562
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (38)..(38)
 <223> n is a, c, g, or t

<400>	247											60
gggg	agtgat	gcttg	gtcct	gatna	cctgt	gac	cttnca	tgctt	gat	at	ccctcc	120
gcagag	tc	tgaat	ggag	t	ggtg	gatg	ctgc	atttcc	actt	cttaaa		180
ggcatt	gttg	ctaca	actga	tg	ttgtt	gaa	gc	atgc	actg	gag	tcaat	

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gttgggtggat tccaagaaa agaaggtatg gagaggaagg atgtgatgac taagaatgtc      240
tctatttaca agtcccaggc ttctgccctt gaaaagcaag ctgctgccaa ctgcaagggt      300
ttgggttattg ctaaccacgc aaataccaat gcattgatct tgaaggagtt tgctccatct      360
attccagaga aaaacatttc agctttgact agacttgatc acaacagggc attgggccaa      420
atttctgaaa gattgaatat tcaagtttct gatgtaaaga atgtcattat ctgggggtaat      480
cattcatcaa ctacgtatcc tgatgtcaac catgcaactg ttaacacccc cgccggggag      540
aagcctgtcc gtgaacttgt tt                                              562

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<210> 248
 <211> 515
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (1)..(1)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (367)..(367)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (427)..(427)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (482)..(482)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (488)..(489)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature

<222> (500)..(500)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (510)..(510)
 <223> n is a, c, g, or t

<400> 248
 ntattcctnc ngcagcngag tnttgaatgg agtaagatgg agttgggtcga tgctgcattt 60
 ccacttctta aaggtgttgt tgctacaact gatgttgttg aggcattgcac tggagtcaat 120
 attgcagtca tgggttggtg attccaaga aaagaaggta tggagaggaa ggatgtgatg 180
 tctaagaacg tctctattta caagtcccag gcttctgccc ttgaaaagca tgctgctgcc 240
 aactgcaagg ttttggttgt tgctaaccga gcaaaccacca atgcattgat cttgaaggaa 300
 tttgctccat ctattccaga gaaaaacatt tcttggttga ctagacttga tcacaacagg 360
 gcattgngcc aaatttctga aagattgaat gtccaagttt ctgatgtaaa gaatgtcatt 420
 atctgngta atcattcatc aactcagcat cctgatgtca accatgcaac tggttaacacc 480
 cncgctgnng agaagcctgn ccgtgagctn gtttc 515

<210> 249
 <211> 598
 <212> DNA
 <213> *Trifolium repens*

<220>
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 <222> (20)..(20)
 <223> n is a, c, g, or t

<400> 249
 tattcctccg cagcagagtn ttgaatggag taagatggag ttgggtcgatg ctgcatttcc 60
 cttcttaaag gtgttgttgc tacaactgat gttgttgagg catgcactgg agtcaatatt 120
 gcagtcattg ttggtggatt cccaagaaaa gaaggatagg agaggaagga tgtgatgtct 180
 aagaacgtct ctattttaca gtcccaggct tctgcccttg aaaagcatgc tgctgccaac 240
 tgcaaggttt tgggttgtgc taaccagca aacaccaatg cattgatctt gaaggaattt 300
 gctccatcta ttccagagaa aaacatttct tgtttgacta gacttgatca caacagggca 360
 ttggggccaaa tttctgaaag attgaatgtc caagtttctg atgtaaagaa tgtcattatc 420
 tggggtaatc attcatcaac tcagtatcct gatgtcaacc atgcaactgt taacaccccc 480
 gctggggaga agcctgtccg tgagcttggt tctgatgacg cctggttgaa tggagaattc 540
 atatctaccg ttcaacaacg tgggtgtgca attattaagg ctagaaagct ttcaagtg 598

<210> 250
 <211> 603
 <212> DNA
 <213> *Trifolium repens*

<400> 250
 ggagaggaag gatgtgatgt ctaagaacgt ctctattttac aagtcccagg cttctgccct 60

tgaaaagcat gctgctgcca actgcaaggt tttggttggt gctaaccag caaacaccaa 120
 tgcattgatc ttgaaggaat ttgctccatc tattccagag aaaaacattt cttgtttgac 180
 tagacttgat cacaacaggg cattgggcca aatttctgaa agattgaatg ttcaagtttc 240
 tgatgtaaag aatgtcatta tctggggtaa tcattcatca actcagtatc ctgatgtcaa 300
 ccatgcaact gttaacaccc ccgctgggga gaagcctgtc cgtgagcttg tttctgatga 360
 cgcctgggtg aatggagaat tcatatctac cgttcaacaa cgtggtgctg caattattaa 420
 ggctagaaag ctttcaagcg cactatccgc tgctagcgt gcttgcgacc acattcgcga 480
 ttgggttctt ggaactcccc agggcacctt cgtttcaatg ggagtgtatt ctgatggttc 540
 ttacaacgta ccagctggac tcatctattc attccctgtc accactgcta atggggaatg 600
 gaa 603

<210> 251
 <211> 695
 <212> DNA
 <213> *Trifolium repens*

<220>
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<220>
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 <222> (8)..(8)
 <223> n is a, c, g, or t

<220>
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 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (12)..(13)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (25)..(25)
 <223> n is a, c, g, or t

<400> 251
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 tgaaaagcat gctgctgcca actgcaaggt tttggttggt gctaaccag caaacaccaa 120
 tgcattgatc ttgaaggaat ttgctccatc tattccagag aaaaacattt cttgtttgac 180
 tagacttgat cacaacaggg cattgggcca aatttctgaa agattgaatg ttcaagtttc 240
 tgatgtaaag aatgtcatta tctggggtaa tcattcatca actcagtatc ctgatgtcaa 300
 ccatgcaact gttaacaccc ccgctgggga gaagcctgtc cgtgagcttg tttctgatga 360
 cgcctgggtg aatggagaat tcatatctac cgttcaacaa cgtggtgctg caattattaa 420

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ggctagaaag ctttcaagcg cactatccgc 1tgctagcgct gcttgcgacc acattcgcga      480
ttggggttctt ggaactcccc agggcacctt cgtttcaatg ggagtgtatt ctgatggttc      540
ttacaacgta ccagctggac tcatctattc attccctgtc accactgcta atgggggaatg      600
gaaaattggtt caaggacttt caattgacga gttctcaagg aagaagttgg acttgacagc      660
tgaagagtta tccgaggaaa agagtttggc atact                                695

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<210> 252
<211> 1408
<212> DNA
<213> Trifolium repens

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<220>
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<223> n is a, c, g, or t

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<220>
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<222> (46)..(46)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
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<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (812)..(812)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (821)..(821)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (823)..(823)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
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<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (922)..(922)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (933)..(933)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (1360)..(1360)
<223> n is a, c, g, or t

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<220>

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<221> misc_feature
 <222> (1386)..(1386)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1390)..(1390)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1393)..(1393)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1403)..(1403)
 <223> n is a, c, g, or t

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<400> 252
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gctctctctc tctttattct cgaaaagctt tttcagccaa caacggagag aattatgagg      120
ccgtcgatgc tcagatccgt ccaatcagcc gtctcccgcg cctcttctca cctaaccgcg      180
cgtggctatg ctaccgaacc agttccagaa cgcaagggtg ccattctcgg cgctgccggc      240
gggatcggcc agcctctctc tcttctcatg aagctcaacc ctctcgtttc aaccctatct      300
ctttatgata ttgctggaac ccctggtgtc gccgctgatg tcagccacat caactccaga      360
tctgaggtaa ctgggtatgc aggtgaagaa gagcttgtaa aagctttgga gggtgctgat      420
gttggtataa ttcctgctgg tgtgcccaga aagcctggaa tgactcgtga tgatcttttc      480
aatattaacg ctggcattgt caagtcactt gccactgcta tttctaagta ctgcccccat      540
gcccttgta acatgataag caaccctgtg aactccaccg ttcccattgc tgcagagggt      600
ttcaagaagg caggacata tgacgagaag agattgtttg gggttacaac ccttgatgta      660
gtcagggcaa aaactttcta tgccgggaaa gctaaagttc cagttgccga ggtcaatgta      720
cctgttatag gaggccatgc aggagtact attcttccat tattttntca ggcaacacct      780
caagccaatc tgggtgatga tacccttaag gntttaacgg nanggacaca agatggagga      840
acagaagttg ngaccgcaa ggctggaaag ggttctgcaa ctttgtcaat ggcttatgct      900
ggagccatat ttgctgatgc tngcctcaa ggnctgaatg gagttccaga tgttattgag      960
tgctcatatg tgcaatccaa tatcatctct gaccttcctt tctttgcttc caagggtgagg     1020
attggaaga atggtgtgga agaaattctg ggcttagggt ctctcacaga tttcgagcaa     1080
caaggccttg aaaacctcaa ggctgaactc aaatcatcta ttgaaaaggg aatcaaattt     1140
gcctcccagt aatcgaacat gtcatacatt actggatttt tccatttaga accagatcaa     1200
attttgcaaa ttcagaacaa ttgtttgtaa tgttgccggt aggtataccc ctagatttaa     1260
taagtaaatc tgcgagagca gtttattgct gcagggactg aaattaaaac cagttttagg     1320
ttggcctttc cattcgtaat ggcccttcat tgttgcatgn ttcatataa tgcaattgaa     1380
gggtgntggn cancgataca canccccc                                         1408

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<210> 253
 <211> 345
 <212> PRT
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (218)..(218)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (233)..(233)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (236)..(237)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (246)..(246)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (270)..(270)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (273)..(273)
 <223> Xaa can be any naturally occurring amino acid

<400> 253

Met Arg Pro Ser Met Leu Arg Ser Val Gln Ser Ala Val Ser Arg Ala
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Ser Ser His Leu Thr Arg Arg Gly Tyr Ala Thr Glu Pro Val Pro Glu
 20 25 30

Arg Lys Val Ala Ile Leu Gly Ala Ala Gly Gly Ile Gly Gln Pro Leu
 35 40 45

Ser Leu Leu Met Lys Leu Asn Pro Leu Val Ser Thr Leu Ser Leu Tyr
 50 55 60

Asp Ile Ala Gly Thr Pro Gly Val Ala Ala Asp Val Ser His Ile Asn
 65 70 75 80

Ser Arg Ser Glu Val Thr Gly Tyr Ala Gly Glu Glu Glu Leu Gly Lys
 85 90 95

Ala Leu Glu Gly Ala Asp Val Val Ile Ile Pro Ala Gly Val Pro Arg
 100 105 110

Lys Pro Gly Met Thr Arg Asp Asp Leu Phe Asn Ile Asn Ala Gly Ile

115	120	125
Val Lys Ser Leu Ala Thr Ala Ile Ser Lys Tyr Cys Pro His Ala Leu 130 135 140		
Val Asn Met Ile Ser Asn Pro Val Asn Ser Thr Val Pro Ile Ala Ala 145 150 155 160		
Glu Val Phe Lys Lys Ala Gly Thr Tyr Asp Glu Lys Arg Leu Phe Gly 165 170 175		
Val Thr Thr Leu Asp Val Val Arg Ala Lys Thr Phe Tyr Ala Gly Lys 180 185 190		
Ala Lys Val Pro Val Ala Glu Val Asn Val Pro Val Ile Gly Gly His 195 200 205		
Ala Gly Val Thr Ile Leu Pro Leu Phe Xaa Gln Ala Thr Pro Gln Ala 210 215 220		
Asn Leu Gly Asp Asp Thr Leu Lys Xaa Leu Thr Xaa Xaa Thr Gln Asp 225 230 235 240		
Gly Gly Thr Glu Val Xaa Thr Ala Lys Ala Gly Lys Gly Ser Ala Thr 245 250 255		
Leu Ser Met Ala Tyr Ala Gly Ala Ile Phe Ala Asp Ala Xaa Leu Lys 260 265 270		
Xaa Leu Asn Gly Val Pro Asp Val Ile Glu Cys Ser Tyr Val Gln Ser 275 280 285		
Asn Ile Ile Ser Asp Leu Pro Phe Phe Ala Ser Lys Val Arg Ile Gly 290 295 300		
Lys Asn Gly Val Glu Glu Ile Leu Gly Leu Gly Ser Leu Thr Asp Phe 305 310 315 320		
Glu Gln Gln Gly Leu Glu Asn Leu Lys Ala Glu Leu Lys Ser Ser Ile 325 330 335		
Glu Lys Gly Ile Lys Phe Ala Ser Gln 340 345		

<210> 254
<211> 537
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (5)..(5)
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<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (16)..(16)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (31)..(31)

<223> n is a, c, g, or t

<400> 254

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ctctctctct ttattctcga aaagcttctt cagccaacaa cgagagaata atgaggccgt 120
cgatgctcag atccgtccaa tcagccgtat cccgcgcctc ctctcaccta acccgccgtg 180
gctatgctac cgaaccagtt ccagaacgca aggtggccat tctcggtgct gccggcgagg 240
tcggacagcc tctctctctt ctcatgaagc tcaacctctt cgtttcaacc ctatctcttt 300
atgatattgc tggaaccctt ggtgtcgccg ctgatgtcag ccacatcaac tccagatctg 360
aggtaactgg gtatgcaggt gaagaagagc ttggaaaagc tttggagggt gctgatgttg 420
ttataattcc tgctggtgtg cccagaaagc ctggaatgac tcgtgatgat cttttcaata 480
ttaacgctgg cattgtcaag tcacttgcca ctgctatttc taagtactgc ccccatg 537
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<210> 255

<211> 608

<212> DNA

<213> *Trifolium repens*

<220>

<221> misc_feature

<222> (4)..(4)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (17)..(17)

<223> n is a, c, g, or t

<400> 255

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gttnattgga atatacncca ctccattcca tactttattt cattcatcgc tctctctctc 60
tctctcttta ttctcgaaaa gctttttcag ccaacaacga gagaataatg aggccgtcga 120
tgctcagatc cgtccaatca gccgtatccc gcgcctcctc tcacctaacc cgccgtggct 180
atgctaccga accagttcca gaacgcaagg tggccattct cgggtgctgcc ggcgggatcg 240
gacagcctct ctctcttctc atgaagctca accctctcgt ttcaacccta tctctttatg 300
atattgctgg aacccttgggt gtcgccgctg atgtcagcca catcaactcc agatctgagg 360
taactgggta tgcagggtgaa gaagagcttg gaaaagcttt ggagggtgct gatgttggtta 420
taattcctgc tgggtgtgcc agaaagcctg gaatgactcg tgatgatctt ttcaatatta 480
acgctggcat tgtcaagtca cttgccactg ctatttctaa gtactgcccc catgcccttg 540
ttaacatgat aagcaaccct gtgaactcca ccgttcccat tgctgcagag gttttcaaga 600
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aggcaggg

608

<210> 256
 <211> 575
 <212> DNA
 <213> Trifolium repens

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 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> n is a, c, g, or t

<400> 256
 gnnccatcgac actcccttcc ctactttcct ttntttatcg ctctctctct ttttattctc 60
 gaaaagcttt ttcagccatc aacggagaga attatgagtc cgtcgatgct cagatccgtc 120
 caatcagccg tctcccgcg cttctctcac ctaaccgcc gtggctatgc taccgaacca 180
 gttccagaac gcaagggtggc cattctcggc gctgccggcg ggatcggcca gcctctctct 240
 cttctcatga agctcaaccc tctcgtttca accctatctc tttatgatat tgctggaacc 300
 cctgggtgtcg ccgctgatgt cagccacatc aactccagat ctgaggtaac tgggtatgca 360
 ggtgaagaag agcttggaag agctttggag ggtgctgatg ttgttataat tcctgccggt 420
 gtgcccagaa agcctggaat gactcgtgat gatcttttta atattaatgc tggcattgtc 480
 aagtcacttg ccactgctat ttctaagtac tgcccccattg cccttggttaa catgataagc 540
 aaccctgtga actccaccgt tccattgct gcagg 575

<210> 257
 <211> 563
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (13)..(13)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> n is a, c, g, or t

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<220>
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 <222> (27)..(27)
 <223> n is a, c, g, or t

<400> 257
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 cagccacaac gagagaataa tgaggccgctc gatgctcaga tctgtccaat cagccgtatc 120
 ccgcgcctcc tctcacctaa cccgccgtgg ctatgctacc gaaccagttc cagaacgcaa 180
 ggtggccatt ctcggtgctg ccggcgggat cggacagcct ctctctcttc tcatgaagct 240
 caaccctctc gtttcaacc tatctcttta tgatattgct ggaacccctg gtgtcgccgc 300
 tgatgtcagc cacatcaact ccagatctga ggtaactggg tatgcaggtg aagaagagct 360
 tggaaaagct ttggagggtg ctgatgttgt tataattcct gctgggtgtgc ccagaaagcc 420
 tggaatgact cgtgatgatc ttttcaatat taacgctggc attgtcaagt cacttgccac 480
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 caccgttccc attgctgcag agg 563

<210> 258
 <211> 583
 <212> DNA
 <213> *Trifolium repens*

<220>
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 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> n is a, c, g, or t

<400> 258
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 aacaacggag agaattatga ggccgtcgat gttcagatcc gtccaatcag ccgtctcccg 120
 cgcctcttct cacctaacc gccgtggcta tgctaccgaa ccagttccag aacgcaaggt 180
 ggccattctc ggcgctgccg gcgggatcgg ccagcctctc tctcttctca tgaagctcaa 240
 ccctctcggt tcaaccctat ctctttatga tattgctgga acccctgggtg tcgccgctga 300
 tgtcagccac atcaactcca gatctgaggt aactgggtat gcaggtgaag aagagcttgg 360
 aaaagctttg gaggggtgctg atgttggtat aattcctgcc ggtgtgccca gaaagcctgg 420
 aatgactcgt gatgatcttt tcaatattaa cgctggcatt gtcaagtcac ttgccactgc 480
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<210> 259
 <211> 598
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

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 acaacggaga gaattatgag gccgtcgatg ttcagatccg tccaatcagc cgtctcccgc 120
 gcctcttctc acctaaccg ccggtggctat gctaccgaac cagttccaga acgcaagggtg 180
 gccattctcg gcgctgccgg cgggatcggc cagcctctct ctcttctcat gaagctcaac 240
 cctctcgttt caaccctatc tctttatgat attgctggaa cccctggtgt cgccgctgat 300
 gtcagccaca tcaactccag atctgaggta actgggtatg cagggtgaaga agagcttgga 360
 aaagctttgg aggggtgctga tggtgttata attcctgccg gtgtgcccag aaagcctgga 420
 atgactcgtg atgatctttt caatattaac gctggcattg tcaagtcact tgccactgct 480
 atttctaagt actgccccca tgcccttggt aacatgataa gcaaccctgt gaactccacc 540
 gttccattg ctgcagaggt tttcaagaag gcagggacat atgacgagaa gagattgt 598

<210> 260
 <211> 827
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (718)..(718)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature

<222> (731)..(731)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (744)..(744)
 <223> n is a, c, g, or t

<220>
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 <222> (753)..(753)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (757)..(757)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (771)..(771)
 <223> n is a, c, g, or t

<220>
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 <222> (775)..(775)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (786)..(786)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (791)..(791)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (806)..(806)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (813)..(813)
 <223> n is a, c, g, or t

<400> 260
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 ccaacaacgg agagaattat gaggccgtcg atgttcagat ccgtccaatc agccgtctcc 120
 cgcgccctctt ctcacctaac ccgccgtggc tatgctaccg aaccagttcc agaacgcaag 180
 gtggccattc tcggcgctgc cggcgggagc ggccagcctc tctctcttct catgaagctc 240
 aaccctctcg tttcaaccct atctctttat gatattgctg gaacccttg tgctgccgct 300
 gatgtcagcc acatcaactc cagatctgag gtaactgggt atgcaggtga agaagagctt 360
 ggaaaagctt tggagggtgc tgatgttggt ataattcctg ccggtgtgcc cagaaagcct 420

ggaatgactc gtgatgatct tttcaatatt aacgctggca ttgtcaagtc acttgccact 480
gctattttcta agtactgccc ccatgccctt gttaacatga taagcaaccc tgtgaactcc 540
accgttccca ttgctgcaga ggttttcaag aaggcaggga catatgacga gaagagattg 600
tttgggggtta caacccttga tgtagtcagg gcgaaaactt tttatgccgg gaaagctaaa 660
gttccagttg ccgaggtcaa tgtacctgtt tttggaggcc atgcaggagt tactattntt 720
ccattatttt ntaaggaaca cctnaagcca atntggntga tgaaaccctt naggntttta 780
cggnganggc ncaagatggg ggaacnga atngnaccgcc aagggtt 827

<210> 261
<211> 556
<212> DNA
<213> Trifolium repens

<220>
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<222> (10)..(10)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (17)..(17)
<223> n is a, c, g, or t

<220>
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<222> (24)..(24)
<223> n is a, c, g, or t

<400> 261
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ccaacaacga .gagaataatg aggccgtcga tgctcagatc cgtccaatca gccgtatccc 120
gcgcctctc tcacctaac ccgctgggt atgctaccga accagttcca gaacgcaggg 180
tggccattct cgggtgctgct ggcgggatcg gacagcctct ctctcttctc atgaagctca 240
accctctcgt ttcaacccta tctctttatg atattgctgg aacccttgg gtcgccgctg 300
atgtcagcca catcaactcc agatctgagg taactgggta tgcaggtgaa gaagagcttg 360
gaaaagcttt ggaggggtgct gatgttggtta taattcctgc tgggtgtgcc agaaagcctg 420
gaatgactcg tgatgatctt ttcaatatta acgctggcat ttgtcaagtca cttgccactg 480
ctattttctaa gtactgcccc catgcccttg ttaacatgat aagcaaccct gtgaactcca 540
ccgttcccat tgctgc 556

<210> 262
<211> 682
<212> DNA
<213> Trifolium repens

<220>
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<223> n is a, c, g, or t

<220>
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 <222> (20)..(20)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (56)..(56)
 <223> n is a, c, g, or t

<400> 262
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 tcaacggaga gaattatgag gccgtcgatg ttcagatccg tccaatcagc cgtctcccgc 120
 gcctcttctc acctaacccg ccgtggctat gctaccgaac cagttccaga acgcaagggtg 180
 gccattctcg gcgctgccgg cgggatcggc cagcctctct ctcttctcat gaagctcaac 240
 cctctcgttt caaccctatc tctttatgat attgctggaa cccctggtgt cgccgctgat 300
 gtcagccaca tcaactccag atctgaggta actgggtatg caggtgaaga agagcttgga 360
 aaagctttgg agggtgctga tgttgttata attcctgccg gtgtgcccag aaagcctgga 420
 atgactcgtg atgatctttt caatattaac gctggcattg ttaagtcact tgccactgct 480
 atttctaagt actgccccca tgcccttggt aacatgataa gcaaccctgt gaactccacc 540
 gttcccattg ctgcagaggt tttcaagaag gcagggacat atgacgagaa gagattgttt 600
 ggggttacaa cccttgatgt agtcagggcg aaaactttct atgccgggaa agctaaagtt 660
 ccagttgccg aggtcaatgt ac 682

<210> 263
 <211> 801
 <212> DNA
 <213> Trifolium repens

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

<220>
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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

<220>

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<222> (772)..(773)

<223> n is a, c, g, or t

<220>

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<222> (777)..(777)

<223> n is a, c, g, or t

<220>

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<222> (783)..(783)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (795)..(795)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (798)..(798)

<223> n is a, c, g, or t

<400> 263

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caacggagag aattatgagg ccgtcgatgt tcagatccgt ccaatcagcc gtctcccgcg	120
cctcttctca cctaaccgc cgtggctatg ctaccgaacc agttccagaa cgcaaggngg	180
ccattctcgg cgctgccggc gggatcggcc agcctctctc tcttctcatg aagctcaacc	240
ctctcgtttc aaccctatct ctttatgata ttgctggaac ccctgggtgtc gccgctgatg	300
tcagccacat caactccaga tctgaggtaa ctgggtatgc aggtgaagaa gagcttgga	360
aagctttgga ggggtctgat gttgttataa ttcctgccgg tgtgcccaga aagcctggaa	420
tgactcgtga tgatcttttc aatattaacg ctggcattgt caagtcactt gccactggta	480
tttctaagta ctgcccccat gcccttggtta acatgataag caaccctgtg aactccaccg	540
ttcccattgc tgnagagggt ttcaagaagg cngggacata tgacnagaan aaattgtttg	600
gggttcaacc cttgatgtag tcagggggaa aacttttttt gccgggaaag ctaaagttcc	660
agttgccng ggnaatgnnc ctgttnttgg aggcctgcng agtnctattn tccctttttt	720
ttttaggcan ncctnancca nttngngat naaaccttaa gggtttacgg gnnggcnaa	780
aanggggaac aaaantnga c	801

<210> 264

<211> 577

<212> DNA

<213> Trifolium repens

<220>

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<222> (2)..(3)

<223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 gtccaatcag ccgtctcccg cgcctcttct cacctaacc gccgtggcta tgctaccgaa 120
 ccagttccag aacgcaaggt ggccattctc ggcgctgccg gcgggatcgg ccagcctctc 180
 tctctttctca tgaagctcaa ccctctcggt tcaaccctat ctctttatga tattgctgga 240
 acccctggtg tcgccgctga tgtcagccac atcaactcca gatctgaggt aactgggtat 300
 gcaggtgaag aagagcttgg aaaagctttg gaggggtgctg atgttggtat aattcctgcc 360
 ggtgtgcccc gaaagcctgg aatgactcgt gatgatcttt tcaatattaa cgctggcatt 420
 gtcaagtcac ttgccactgc tatttctaag tactgcccc atgcccttgt taacatgata 480
 agcaaccctg tgaactccac cgttcccatt gctgcagagg ttttcaagaa ggcagggaca 540
 tatgacgaga agagattggt tgggggttaca acccttg 577

<210> 265
 <211> 594
 <212> DNA
 <213> Trifolium repens

<400> 265
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 ccatcagccg tatcccgcgc ctctctcac ctaaccgcc gccgttatgc taccgaacca 120
 gttccagaac gcaaggtggc cattctcggc gctgctggcg ggatcggcca gcctctctct 180
 cttctcatga agctcaatcc tctcgtttca accctatctc tttatgatat tgctggaacc 240
 cctggtgtcg ccgtgatgt cagccacatc aactccagat ctgaggtaac tgggtatgca 300
 ggtgaagaag agcttggaag agctttggag ggtgctgatg ttgttataat tcctgctggt 360
 gtgcccagaa agcctggaat gactcgtgat gatcttttca atattaacgc tggcattgtc 420
 aagtcacttg cactgctat ttctaagtac tgccccatg cccttggtta catgataagc 480
 aaccctgtga actccaccgt tcccattgct gcagagggtt tcaagaaggc agggacatat 540
 gacgagaaga gattgtttgg ggttacaacc cttgatgtag tcagggcaaa aact 594

<210> 266
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 <212> DNA
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<223> n is a, c, g, or t

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<222> (140)..(140)

<223> n is a, c, g, or t

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<222> (517)..(517)

<223> n is a, c, g, or t

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<222> (547)..(547)

<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<222> (635)..(635)

<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<222> (689)..(689)

<223> n is a, c, g, or t

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<222> (691)..(691)

<223> n is a, c, g, or t

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<222> (703)..(703)

<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (754)..(754)
 <223> n is a, c, g, or t

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 <222> (756)..(756)
 <223> n is a, c, g, or t

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 <222> (766)..(766)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (797)..(798)
 <223> n is a, c, g, or t

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 <222> (804)..(805)
 <223> n is a, c, g, or t

<220>
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 <222> (811)..(811)
 <223> n is a, c, g, or t

<400> 266
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 gtccaatcag ccgtatcccg ggctctctct cacctaacc gccgtgggta tgctaccgaa 120
 ccagttccag aacgcaaggn ggccattctc ggtgctgccg gcgggatcgg acagcctctc 180
 tctcttctca tgaagctcaa ccctctcggt tcaaccctat ctctttatga tattgctgga 240

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acccttggtg tcgccgctga tgtcagccac atcaactcca gatctgaggt aactgggtat 300
gcaggtgaag aagagcttgg aaaagctttg gaggggtgctg atgttggttat aattcctgct 360
ggtgtgcca gaaagcctgg aatgactcgt gatgatcttt tcaatattaa cgctggcatt 420
gtcaagtcac ttgccactgc tatttctaag tactgcccc atgcccttgt taacatgata 480
agcaaccctg tgaactccac cgttcccatt gctgcanagg ttttcaagaa ggcagggaca 540
tatgacnaga agagattggt tgggggttaca acccttgatg tagncagggc aaaaactttt 600
tatgctggga aagctaaagt tccagttgcc gaggncaatg gacctgttat aggaggccat 660
gcaggagtta ctattctncc attattttnt naggcaacac ctnaagccaa tntgggtgan 720
gatnccctta aggntttaac ggnanggacc caananggag gaacanaant tnngaccccc 780
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<210> 267
<211> 722
<212> DNA
<213> Trifolium repens

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<223> n is a, c, g, or t

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<222> (36)..(36)
<223> n is a, c, g, or t

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<222> (38)..(38)
<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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gaagaagagc ttggaaaagc tttggagggt gctgatgttg ttataattcc tgctggtgtg 120
cccagaaagc ctggaatgac tcgtgatgat cttttcaata ttaacgctgg cattgtcaag 180

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tcacttgcca ctgctatttc taagtactgc ccccatgccc ttgttaacat gataagcaac      240
cctgtgaact ccaccgttcc cattgctgca gaggttttca agaaggcagg gacatatgac      300
gagaagagat tgtttggggg tacaaccctt gatgtagtca gggcaaaaac tttctatgct      360
gggaaagcta aagttccagt tgccgaggtc aatgtacctg ttataggagg ccatgcagga      420
gttactattc tcccattatt ttctcaggca acacctcaag ccaatctgga tgatgatacc      480
attaaggctc taacggcaag gacacaagat ggaggaacag aagttgtgac cgccaaggct      540
ggaaaggggt ctgcaacttt gtcaatggct tatgctggag ccatatttgc tgatgcttgc      600
ctcaaaggct tgaatggagt tccagatggt attgagtgc catatgtgca atccaatatc      660
atctctgacc ttncctttct tgcttccaag gtgaggattg ggaanaatgg tgtgggaana      720
at                                     722

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<210> 268
<211> 557
<212> DNA
<213> Trifolium repens

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<220>
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<223> n is a, c, g, or t

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<220>
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<223> n is a, c, g, or t

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<400> 268
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gaaaagcttt ggagggtgct gatgttggtta taattcctgc tgggtgtgccc agaaagcctg      120
gaatgactcg tgatgatctt ttcaatatta acgctggcat tgtcaagtca cttgccactg      180
ctattttctaa gtactgcccc catgcccttg ttaacatgat aagcaaccct gtgaactcca      240
ccgttcccat tgctgcagag gttttcaaga aggcaaggac atatgacgag aagagattgt      300
ttgggggttac aacccttgat gtagtcaggg caaaaacttt ctatgctggg aaagctaaag      360
ttccagttgc cgagggtcaat gtacctgtta taggaggcca tgcaggagtt actattctcc      420
cattattttc tcaggcaaca cctcaagcca atctggatga tgataccatt aaggctctaa      480
cggcaaggac acaagatgga ggaacagaag ttgtgaccgc caaggctgga aagggttctg      540
caactttgtc aatggct                                     557

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<210> 269
<211> 138
<212> DNA
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 <223> n is a, c, g, or t

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 <222> (22)..(22)
 <223> n is a, c, g, or t

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 <222> (36)..(36)
 <223> n is a, c, g, or t

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 <222> (39)..(39)
 <223> n is a, c, g, or t

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 <222> (77)..(77)
 <223> n is a, c, g, or t

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 <222> (104)..(106)
 <223> n is a, c, g, or t

<400> 269
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 caatccaata tcatctntga ccttcctttc tttgcttcca aggnnnnggat tgggaagaat 120
 ggtgtggaag agattctg 138

<210> 270
 <211> 465
 <212> DNA
 <213> Trifolium repens

<220>
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 <223> n is a, c, g, or t

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 <222> (4)..(4)
 <223> n is a, c, g, or t

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 <223> n is a, c, g, or t

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 <222> (43)..(43)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (417)..(417)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (443)..(443)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (447)..(447)
 <223> n is a, c, g, or t

<220>
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 <222> (450)..(450)
 <223> n is a, c, g, or t

<220>
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 <222> (460)..(460)
 <223> n is a, c, g, or t

<400> 270
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 tttgcttcca ggtgaggatt gggaagaatg gtgtggaaga aattctgggc ttaggttctc 120
 tcacagattt cgagcaacaa ggccttgaaa acctcaaggc tgaactcaaa tcatctattg 180
 aaaagggaat caaatgtgcc tcccagtaat cgaacatgtc atacattact ggatttttcc 240
 atttagaacc agatcaaatt ttgcaaattc agaacaattg tttgtaatgt tgccggtagg 300
 tataccccta gatttaataa gtaaactctgc gagagcagtt tattgctgca gggactgaaa 360
 ttaaaaccag ttttaggttg gcctttccat tcgtaatggc ccttcattgt tgcattgntt 420
 catataatgc aattgaaggg tgntggncan cgatacacan ccccc 465

<210> 271
 <211> 598
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<400> 271
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 cccattacca ttcattccca gaggtcgaga tggcagcatc agcagcagct acttttacta 120
 ttggaactgc ccaaacaggg aggccacttc ctcaatcaaa cccttttggt ttgaaagtca 180
 attcccaggt taattttaag accttctctg gtctcaaggc catgtcatct ctaagatgcg 240
 agtctgaatc atctttcttt ggcaacgaaa ctagtgctgc tctgctgca acttttgcac 300
 ccaaagctca aaaggaaaac caaaacatca accgcaattt gcacccctcag gcacccctaca 360
 aagtggcggg tcttggtgct gcaggaggaa ttggtcagcc actggcactt ctcattaaga 420
 tgctgccttt ggtttccgac ctgcatcttt atgatatcgc gaatgttaag ggagttgctg 480
 ctgatatcag tcattgcaac actccttcaa aggttttgga tttcacaggt gcttctgagt 540
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<210> 272
 <211> 169
 <212> PRT
 <213> Trifolium repens

<400> 272
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 Gly Arg Pro Leu Pro Gln Ser Asn Pro Phe Gly Leu Lys Val Asn Ser
 20 25 30
 Gln Val Asn Phe Lys Thr Phe Ser Gly Leu Lys Ala Met Ser Ser Leu
 35 40 45
 Arg Cys Glu Ser Glu Ser Ser Phe Phe Gly Asn Glu Thr Ser Ala Ala
 50 55 60
 Leu Arg Ala Thr Phe Ala Pro Lys Ala Gln Lys Glu Asn Gln Asn Ile
 65 70 75 80
 Asn Arg Asn Leu His Pro Gln Ala Ser Tyr Lys Val Ala Val Leu Gly
 85 90 95
 Ala Ala Gly Gly Ile Gly Gln Pro Leu Ala Leu Leu Ile Lys Met Ser
 100 105 110
 Pro Leu Val Ser Asp Leu His Leu Tyr Asp Ile Ala Asn Val Lys Gly
 115 120 125
 Val Ala Ala Asp Ile Ser His Cys Asn Thr Pro Ser Lys Val Leu Asp
 130 135 140

Phe Thr Gly Ala Ser Glu Leu Ala Asn Cys Leu Lys Gly Val Asp Val
 145 150 155 160

Val Val Ile Pro Ala Gly Val Pro Arg
 165

<210> 273
 <211> 554
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
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 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (44)..(44)
 <223> n is a, c, g, or t

<400> 273
 gngtaggcgg agattttnaac ccattttcct cttaaacttc tctnaacttc tctttccatt 60
 cccattacca ttcattccca gaggtcgaga tggcagcatc agcagcagct acttttacta 120
 ttggaactgc ccaaacaggg aggccacttc ctcaatcaaa cccttttggt ttgaaagtca 180
 attcccaggt taattttaag accttctctg gtctcaaggc catgtcatct ctaagatgcg 240
 agtctgaatc atctttcttt ggcaacgaaa ctagtgctgc tctgcgtgca acttttgcac 300
 ccaaagctca aaaggaaaac caaaacatca accgcaattt gcacccctcag gcacccctaca 360
 aagtggcggg tcttggtgct gcaggaggaa ttggtcagcc actggcactt ctcattaaga 420
 tgctgccttt ggtttccgac ctgcactctt atgatatcgc gaatgttaag ggagttgctg 480
 ctgatatcag tcattgcaac actccttcaa aggttttgga tttcacaggt gcttctgagt 540
 tggcaaattg tttg 554

<210> 274
 <211> 593
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (15)..(16)
 <223> n is a, c, g, or t

<400> 274
 gtttaggcgga gatttnaacc cattttcctc ttaaactctc ctcacttctc tttccattcc 60
 cattaccatt cattcccaga ggtcgcagatg gcagcatcag cagcagctac ttttactatt 120

I

ggaactgccc aaacagggag gccacttcct caatcaaacc cttttggttt gaaagtcaat 180
 tcccagggtta attttaagac cttctctggt ctcaaggcca tgtcatctct aagatgcgag 240
 tctgaatcat ctttcttttg caacgaaact agtgctgctc tgcgtgcaac ttttgcaccc 300
 aaagctcaaa aggaaaacca aaacatcaac cgcaatttgc atcctcaggc atcctacaaa 360
 gtggcggttc ttggtgctgc aggaggaatt ggtcagccac tggcacttct cattaagatg 420
 tcgccttttg tttccgacct gcatctttat gatatcgca atgttaaggg agttgctgct 480
 gatatcagtc attgcaacac tccttcaaag gttttggatt tcacagggtgc ttctgagttg 540
 gcaaattggt tgaaagggtg ggatgtagtt gttatacctg ctggtgttcc cag 593

<210> 275
 <211> 590
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> n is a, c, g, or t

<400> 275
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 cattcattcc cagacgttga gatggcagca tcagcagcag ctacttttac tattggaact 120
 gccc aaacag ggaggtcact tcctcaatca aacccttttg gtttgaaagt caattcccag 180
 gttaatttta agaccttctc tgggtctcaag gccatgtcgt ctctaagatg cgagtctgaa 240
 tcatctttct ttggcaacga aacttggtgct gctctgctg caacttttgc acccaaagct 300
 caaaaggaaa accgaaacat caaccgcaat ttgcagcctc aggcaccta caaagtggcg 360
 gttctcggtg ctgcaggagg aattgggtcag ccacttgac ttctcattaa gatgtgcct 420
 ttggtttccg acctgcatct ttatgacatt gcgaatgtta agggagttgc tgctgatatc 480
 agccattgca aactccttc aaaggttttg gatttcacag gtgcttctga gctagcaaat 540
 tgtttgaaag gtgtggatgt tggtgttata cctgctggtg ttcttagaaa 590

<210> 276
 <211> 1230
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> n is a, c, g, or t

<220>

<221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (43)..(43)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (48)..(48)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (834)..(834)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (846)..(846)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (898)..(898)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (900)..(900)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1162)..(1162)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1192)..(1192)
 <223> n is a, c, g, or t

<400> 276
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 tctctcaatt attattagtc cttagaaatg gaagcacatg cagctggagc caatcagagg 120
 attgcaagaa tctctgctca tcttcaacct ccaaattttcc aggaaggagg tgatgttgca 180
 attagcaaag ctaactgcag agcaaaaagg ggggcgccgg gattcaaagt agcaatcttg 240
 ggggctgctg gtggaattgg tcaatccctt tctttgctgt tgaagatcaa tccattgggt 300
 tcagttcttc atctttatga tgttgtcaac actcctgggtg tcaactgctga tgtagtcac 360
 attgacaccg gtgctgtggt tcgtggcctt ctagggcagg cacaactga gaatgcactt 420
 acaggcatgg acttggtcgt tatacctgct ggtgtgccga ggaaacctgg aatgacaagg 480
 gatgacttat ttaagataaa tgctggaatt gtgaggactc ttagcgaagg aattgccaag 540
 agctgtccta atgcaattgt caacttgatt agcaatccag tgaattccac tgtgccaatt 600
 gctgctgagg ttttcaagaa agccggtaca tatgatccaa agcgactttt aggggttaca 660
 accctcgatg ttgtgagggc aaataccttt gtggcagaag tacttggtgt tgatccaaga 720

I

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gaggttgatg ttccagtggg aggagggcac gcaggagtca caatattacc tcttttgtca      780
caggttaagc ctcccagtag cttcaccgca gaagaaaccg aatacctgac aaancgcatt      840
caaaanggcg gaacacaagt tgttgaggca aaggctgggg ctggttcggc aacactantn      900
atggcctatg cagctgccaa gtttgctaac gcatgcctcc gtggcttgaa aggagaagcc      960
gggtagtggt agtgtgcttt tgttgattct caggttacgg aacttccttt ctttgcagcc     1020
aaggttcgtc ttggtcgcgg tggagcagaa gagatatatc aacttggtcc ccttaatgag     1080
tatgagagga ttggattaga aaaagcgaag aaagagttag caggaagcat ccagaaggga     1140
gtagaattca tcaaaaaaaaa anaaagataa ggaaaaatta gttttgtatt gnctctttct     1200
atatctataa agaacttggt taataattcc                                     1230

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<210> 277
 <211> 359
 <212> PRT
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (249)..(249)
 <223> xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (253)..(253)
 <223> xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (358)..(358)
 <223> xaa can be any naturally occurring amino acid

<400> 277

Met Glu Ala His Ala Ala Gly Ala Asn Gln Arg Ile Ala Arg Ile Ser
1 5 10 15

Ala His Leu Gln Pro Pro Asn Phe Gln Glu Gly Gly Asp Val Ala Ile
20 25 30

Ser Lys Ala Asn Cys Arg Ala Lys Gly Gly Ala Pro Gly Phe Lys Val
35 40 45

Ala Ile Leu Gly Ala Ala Gly Gly Ile Gly Gln Ser Leu Ser Leu Leu
50 55 60

Leu Lys Ile Asn Pro Leu Val Ser Val Leu His Leu Tyr Asp Val Val
65 70 75 80

Asn Thr Pro Gly Val Thr Ala Asp Val Ser His Ile Asp Thr Gly Ala
85 90 95

Val Val Arg Gly Phe Leu Gly Gln Ala Gln Leu Glu Asn Ala Leu Thr

100 105 110
 Gly Met Asp Leu Val Val Ile Pro Ala Gly Val Pro Arg Lys Pro Gly
 115 120 125
 Met Thr Arg Asp Asp Leu Phe Lys Ile Asn Ala Gly Ile Val Arg Thr
 130 135 140
 Leu Ser Glu Gly Ile Ala Lys Ser Cys Pro Asn Ala Ile Val Asn Leu
 145 150 155 160
 Ile Ser Asn Pro Val Asn Ser Thr Val Pro Ile Ala Ala Glu Val Phe
 165 170 175
 Lys Lys Ala Gly Thr Tyr Asp Pro Lys Arg Leu Leu Gly Val Thr Thr
 180 185 190
 Leu Asp Val Val Arg Ala Asn Thr Phe Val Ala Glu Val Leu Gly Val
 195 200 205
 Asp Pro Arg Glu Val Asp Val Pro Val Val Gly Gly His Ala Gly Val
 210 215 220
 Thr Ile Leu Pro Leu Leu Ser Gln Val Lys Pro Pro Ser Ser Phe Thr
 225 230 235 240
 Ala Glu Glu Thr Glu Tyr Leu Thr Xaa Arg Ile Gln Xaa Gly Gly Thr
 245 250 255
 Gln Val Val Glu Ala Lys Ala Gly Ala Gly Ser Ala Thr Leu Met Ala
 260 265 270
 Tyr Ala Ala Ala Lys Phe Ala Asn Ala Cys Leu Arg Gly Leu Lys Gly
 275 280 285
 Glu Ala Gly Ile Val Glu Cys Ala Phe Val Asp Ser Gln Val Thr Glu
 290 295 300
 Leu Pro Phe Phe Ala Ala Lys Val Arg Leu Gly Arg Gly Gly Ala Glu
 305 310 315 320
 Glu Ile Tyr Gln Leu Gly Pro Leu Asn Glu Tyr Glu Arg Ile Gly Leu
 325 330 335
 Glu Lys Ala Lys Lys Glu Leu Ala Gly Ser Ile Gln Lys Gly Val Glu
 340 345 350
 Phe Ile Lys Lys Lys Xaa Arg
 355

<210> 278

<211> 673
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (43)..(43)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (48)..(48)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (651)..(651)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (670)..(670)
 <223> n is a, c, g, or t

<400> 278
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 tctctaatta ttattagtcc ttcgaaatgg aagcacatgc agctgggtacc aatcagagga 120
 ttgcaagaat ctctgctcat cttcagcctc caaatttcca ggaaggaggt gatgttgcaa 180
 ttagcaaagc taactgcaga gcaaaagggtg gggcgccggg attcaaagta gcaatcttgg 240
 gggctgctgg tggaattggt caatcccttt ctttgctgtt gaagatcaat ccattggttt 300
 cagttcttca tctttatgat gttgtcaaca ctctggtgt cactgctgat gttagtcaca 360
 ttgacaccgg tgctgtgggt cgtggctttc tagggcaggc acaacttgag aatgcactta 420
 caggcatgga cttggctggt atacctgctg gtgtgccgag gaaacctgga atgacaaggg 480
 atgacttatt taagataaat gctggaattg tgaggactct tagcgaagga attgccaaaga 540
 gctgtcctaa tgcaattgtc aacttgatta gcaatccagt gaattccact gtgccaattg 600
 ctgctgaggt tttcaagaaa gccggtacat atgatccaaa gcgactttta ngggtaacaa 660
 ccctcgatgn tgt 673

<210> 279
 <211> 574

<212> DNA
<213> *Trifolium repens*

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

<400> 279
gngtctctca attattatta gtccttagaa atggaagcac atgcagctgg tgccaatcag 60
aggattgcaa gaatctctgc tcatcttcaa cctccaaatt tccaggaagg aggtgatggt 120
gcaattagca aagctaactg cagagcaaaa ggtggggcgc cgggattcaa agtagcaatc 180
ttgggggctg ctggtggaat tggatcaatcc ctttctttgc tgttgaagat caatccattg 240
gtttcagttc ttcattcttta tgatgttggt aacactcctg gtgtcactgc tgatgttagt 300
cacattgaca ccggtgctgt gggtcgtggc tttctagggc aggcacaact tgagaatgca 360
cttacaggca tggacttggg cggtatacct gctggtgtgc cgaggaaacc tggaatgaca 420
agggatgact tatttaagat aaatgctgga attgtgagga ctcttagcga aggaattgcc 480
aagagctgtc ctaatgcaat tgtcaacttg attagcaatc cagtgaattc cactgtgcc 540
attgctgctg aggttttcaa gaaagccggt acat 574

<210> 280
<211> 543
<212> DNA
<213> *Trifolium repens*

<400> 280
gtgtctctca attattatta gtccttagaa atggaagccc atgcagctgg agccaatcag 60
aggattgcaa gaatctctgc tcatcttcaa cctccaaatt tccaggaagg aggtgatggt 120
gcaattagca aagctaactg cagagcgaaa ggtggggcgc cgggattcaa agtagcaatc 180
ttgggggctg ctggtggaat tggatcaatcc ctttctttgc tgttgaagat caatccattg 240
gtttcagttc ttcattcttta tgatgttggt aacactcctg gtgtcactgc tgatgttagt 300
cacattgata ccggtgctgt gggtcgtggc tttctagggc aggcacaact tgagaatgca 360
cttacaggca tggacttggg cggtatacct gctggtgtgc cgaggaaacc tggaatgaca 420
agggatgact tatttaagat aaatgctgga attgtgagga ctctttctga aggaattgtc 480
aagagctgtc ctaatgcaat tgtcaacttg attagcaatc cagtgaattc cactgtgcc 540
att 543

<210> 281
<211> 593
<212> DNA
<213> *Trifolium repens*

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n is a, c, g, or t

<400> 281
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 ctcattcttcg cctccaaatt tccaggaagg aagtgatgtc gcaattagca aagctaactg 120
 cagagcaaaa ggtggggcgc cgggattcaa agtagcaatc ttgggggctg ctggtggaat 180
 tgggtcaatcc ctttctttgc tgttgaagat caatccattg gtttcgggtc ttcattcttta 240
 tgatgttggtc aacactcctg gtgtcactgc tgatgttagt cacattgaca ccggtgctgt 300
 gggttcgtggc tttctagggc aggcaaacat tgagaatgca cttacaggca tggacttggc 360
 cggttatacct gctggtgtgc cgaggaaacc tggaatgaca agggatgact tatttaagat 420
 aaatgctgga attgtgagga ctctttctga aggaattgtc aagagctgtc ctaatgcaat 480
 tgtcaacttg attagcaatc cagtgaattc cactgtgcc aattgctgctg aggtcttcaa 540
 gaaagccggt acatatgatc caaaacgact tttaggagtt acaaccctcg atg 593

<210> 282
 <211> 693
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (545)..(545)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (562)..(562)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (584)..(584)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (592)..(592)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (615)..(615)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (619)..(619)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (625)..(625)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (631)..(631)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (638)..(638)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (644)..(644)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (647)..(647)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (653)..(653)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (670)..(670)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (674)..(674)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (680)..(680)
 <223> n is a, c, g, or t

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<400> 282
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ttcaacctcc aaatttccag gaaggaggtg atgttgcaat tagcaaagct aactgcagag      120
caaaaggtgg ggcgccggga ttcaaagtag caatcttggg ggctgctggt ggaattggtc      180
aatccctttc tttgctgttg aagatcaatc cattgggtttc ggttcttcat ctttatgatg      240
ttgtcaacac tcctggtgtc actgctgatg ttagtcacat tgacaccggt gctgtgggttc      300
gtggctttct agggcaggca caacttgaga atgcacttac aggcattggac ttggtcgtta      360
tacctgctgg tgtgccgagg aaacctggaa tgacaagggg tgacttattt aagataaatg      420
ctggaattgt gaggactctt tctgaaggaa ttgtcaagag ctgtcctaata gcaattgtca      480
acttgattag caatccagtg aattccactg tgccaattgc tggtagaggtc ttcaagaaag      540
ccggnacata tgatccaaaa cactttttaa gggttacaac cctngatggt gngagggcaa      600
atacttttgt ggcanagnc ttgngttga ncccaaanag ggtnatnttc cantggtagg      660
agggcccccn ggantacaan attacccttt ttt                                     693

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<210> 283

<211> 555
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (21)..(22)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (50)..(50)
 <223> n is a, c, g, or t

<400> 283
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 tccaggaagg aggtgatgtt gcaattagca aagctaactg cagagcaaaa ggtggggcgc 120
 cgggattcaa agtagcaatc ttgggggctg ctgggtggaat tgggtcaatcc ctttctttgc 180
 tgttgaagat caatccattg gtttcagttc ttcattctta tgatgttggtc aacactcctg 240
 gtgtcactgc tgatgttagt cacattgaca ccggtgctgt ggttcgtggc tttctagggc 300
 aggacaact tgagaatgca cttacaggca tggacttggt cggtatacct gctgggtgtgc 360
 cgaggaaacc tggaatgaca agggatgact tatttaagat aaatgctgga attgtgagga 420
 ctcttagcga aggaattgcc aagagctgtc ctaatgcaat tgtcaacttg attagcaatc 480
 cagtgaattc cactgtgccca attgctgctg aggttttcaa gaaagccggt acatatgatc 540
 caaagcgact ttttag 555

<210> 284
 <211> 473
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (42)..(42)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (339)..(339)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (356)..(356)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (394)..(394)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (401)..(401)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (409)..(409)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (414)..(414)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (432)..(432)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (434)..(434)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (437)..(437)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (446)..(446)
 <223> n is a, c, g, or t

<400> 284
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 gaggaaacct ggaatgacaa gggatgactt atttaagata aatgctggaa ttgtgaggac 120
 tcttagcgaa ggaattgcc aagagctgtcc taatgcaatt gtcaacttga ttagcaatcc 180
 agtgaattcc actgtgccaa ttgctgctga ggttttcaag aaagccggta catatgattc 240
 aaagcgactt ttaggggtaa caaccctcga tggtgtgagg gcaaataacct ttgtggcaga 300
 agtacttgggt gttgatccaa gagagggttga tggtccagng gtaggatggc acgcangagt 360
 acaatattac ctcttttgtc acagggttaag cctnccagta ncttaccgna gaanaaacgg 420
 aataacctgac anancgnatt caaaanggcg gaacacaagt cgttgaggca aag 473

<210> 285
 <211> 598
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (266)..(266)
 <223> n is a, c, g, or t

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<220>
 <221> misc_feature
 <222> (560)..(560)
 <223> n is a, c, g, or t

<400> 285
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 ggcagaagta cttggtgttg atccaagaga ggttgatggt ccagtggtag gagggcacgc 120
 aggagtcaca atattacctc ttttgtcaca ggttaagcct cccagtagct tctactgcaga 180
 agaaaccgaa tacctgacaa atcgcattca aaatggtgga acagaagttg ttgaggcaaa 240
 ggctggggct gggttcggcaa cactantaat ggcatatgca gctgccaagt ttgctaacgc 300
 atgcctccgt ggcttgaaaag gagaagccgg gatagtggag tgtgcttttg ttgattctca 360
 ggttacggaa cttccttttct ttgcagccaa gggtcgtctt ggtcgcggtg gagcagaaga 420
 gatataccaa cttgggtccc ttaatgagta tgagaggatt gggttggaaa aagcgaagaa 480
 tgagtttagcg ggaagcatcc agaagggagt agaattcatc agaaaataag tcagataagg 540
 aaaaattagt tttgtattgn ctctttctat atctataaag aacttggtga ataattcc 598

<210> 286
 <211> 306
 <212> DNA
 <213> *Trifolium repens*

<220>
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 <222> (40)..(40)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (42)..(42)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (298)..(298)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (304)..(304)
 <223> n is a, c, g, or t

<400> 286
 gttgttgagg caaaggctgg ggctggttcg gcaacactan tnatggccta tgcagctgcc 60
 aagtttgcta acgcatgcct ccgtggcttg aaaggagaag ccgggatagt ggagtgtgct 120
 tttgttgatt ctcaggttac ggaacttcct ttctttgcag ccaaggttcg tcttggtcgc 180
 ggtggagcag aagagatata tcaacttggt ccccttaatg agtatgagag gattggatta 240
 gaaaaagcga agaaagagtt agcaggaagc atccagaagg gagtagaatt catcacanaa 300
 aaanaa 306

<210> 287
 <211> 299
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (31)..(31)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (36)..(36)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (38)..(38)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (299)..(299)
 <223> n is a, c, g, or t

<400> 287
 ttgttgaggn aaaggctggg gctgggtcgg naccttnat ggcctatgca gctgccagtt 60
 tgctaacgca tgcctccgtg gcttgaaagg agaagccggg atagtggagt gtgcttttgt 120
 tgattctcag gttacggaac ttcctttctt tgcagccaag gttcgtcttg gtcgcggtgg 180
 agcagaagag atatatcaac ttggtcccct taatgagtat gagaggattg gattagaaaa 240
 agcgaagaaa gagttagcag gaagcatcca gaagggagta gaattcatca aaaaaaaan 299

<210> 288
 <211> 866
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (38)..(38)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (280)..(280)
 <223> n is a, c, g, or t

<400> 288
 gnntacngct atcnaccctt ctttcttata caataatnat agataaattc atctgctaaa 60
 ttatggagcc aaattcagat gcaaatcaac gaatcgcaag aatctccggc cacctaaatc 120
 ctcccaatth caagatgaat gaacatggtg attcttcttt gacaagtttc cattgccgtg 180
 caaaagggtg agcacctgga ttcaaagttg caatttttagg tgctgctggt ggcataaggtc 240
 aacctctttc aatggtgatg aagatgaatc ctttggtttt agttcttcat ctttatgatg 300
 ttgttaatac tcctggtggt acttctgata ttagtcatat ggatactgct gctgttggtc 360
 gagggttttt ggggcaaaat cagcttgagg atgcacttac aggtatggat ttggtaatca 420
 ttcctgccgg tgttccccgt aaacctggaa tgacaagaga tgatctcttc aatataaatg 480
 ccgggatcgt taaaacactc tgtgaagcaa ttgcaaagcg atgtcctaag gcgattgtca 540
 acgtgattag taatccggtt aactccactg tccccattgc ggctgaagtt ttcaaaagag 600
 ccggtactta tgatcccaag agacttttgg gagtgacaat gcttgatgtg gttcggggcca 660
 atacgtttgt ggctgaagtt cttggtcttg atccaagga tgtggatgtc ccagttgtcg 720
 gaggacatgc cggaatcacc attttacctc tgctttctca ggttaaacca cattcctctt 780
 tcacgacaaa ggaaattgag tacttgacag atcgcataca aaacggtgga actgaagttg 840
 ttgaggccaa agctggagct ggctct 866

<210> 289
 <211> 268
 <212> PRT
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (73)..(73)
 <223> Xaa can be any naturally occurring amino acid

<400> 289
 Met Glu Pro Asn Ser Asp Ala Asn Gln Arg Ile Ala Arg Ile Ser Gly
 1 5 10 15
 His Leu Asn Pro Pro Asn Phe Lys Met Asn Glu His Gly Asp Ser Ser
 20 25 30
 Leu Thr Ser Phe His Cys Arg Ala Lys Gly Gly Ala Pro Gly Phe Lys
 35 40 45
 Val Ala Ile Leu Gly Ala Ala Gly Gly Ile Gly Gln Pro Leu Ser Met
 50 55 60
 Leu Met Lys Met Asn Pro Leu Val Xaa Val Leu His Leu Tyr Asp Val

65 70 75 80
 Val Asn Thr Pro Gly Val Thr Ser Asp Ile Ser His Met Asp Thr Ala
 85 90 95
 Ala Val Val Arg Gly Phe Leu Gly Gln Asn Gln Leu Glu Asp Ala Leu
 100 105 110
 Thr Gly Met Asp Leu Val Ile Ile Pro Ala Gly Val Pro Arg Lys Pro
 115 120 125
 Gly Met Thr Arg Asp Asp Leu Phe Asn Ile Asn Ala Gly Ile Val Lys
 130 135 140
 Thr Leu Cys Glu Ala Ile Ala Lys Arg Cys Pro Lys Ala Ile Val Asn
 145 150 155 160
 Val Ile Ser Asn Pro Val Asn Ser Thr Val Pro Ile Ala Ala Glu Val
 165 170 175
 Phe Lys Arg Ala Gly Thr Tyr Asp Pro Lys Arg Leu Leu Gly Val Thr
 180 185 190
 Met Leu Asp Val Val Arg Ala Asn Thr Phe Val Ala Glu Val Leu Gly
 195 200 205
 Leu Asp Pro Arg Asp Val Asp Val Pro Val Val Gly Gly His Ala Gly
 210 215 220
 Ile Thr Ile Leu Pro Leu Leu Ser Gln Val Lys Pro His Ser Ser Phe
 225 230 235 240
 Thr Thr Lys Glu Ile Glu Tyr Leu Thr Asp Arg Ile Gln Asn Gly Gly
 245 250 255
 Thr Glu Val Val Glu Ala Lys Ala Gly Ala Gly Ser
 260 265

<210> 290
 <211> 572
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>

<221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (38)..(38)
 <223> n is a, c, g, or t

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<400> 290
gnntacngct atcnaccctt ctttcttata caataatnat agataaattc atctgctaaa    60
ttatggagcc aaattcagat gcaaataaac gaatcgcaag aatctccggc cacctaaatc    120
ctcccaatth caagatgaat gaacatgggtg attcttcttt gacaagtttc cattgccgtg    180
caaaagggtgg agcacctgga ttcaaagttg caattttagg tgctgctggt ggcataggtc    240
aacctctttc aatggtgatg aagatgaatc ccttggttta gttcttcac tttatgatgt    300
tgtaataact cctggtgtta cttctgatat tagtcacatg gatactgggtg ctgttggttcg    360
aggatthttg gggcaaaatc agcttgagga tgcacttaca ggtatggatt tggtaatcat    420
tcctgctggt gttccccgta aacctggaat gacaagagat gatctcttca atataaatgc    480
cgggatcgtt aaaacactct gtgaagcaat tgcgaagcga tgtcctaagg cgattgtcaa    540
cgtgattagt aatccggtta actccactgt cc                                572
  
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<210> 291
 <211> 576
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> n is a, c, g, or t

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<400> 291
gtgncatagg tnaccctctt tnatgttgat gaagatgaat cctatggttt agttcttcat    60
ctttatgatg ttgttaatac tcctggtggt acttctgata ttagtcatat ggatactgct    120
gctgttggtc gagggthttt ggggcaaaat cagcttgagg atgcacttac aggtatggat    180
ttggtaatca ttcctgccgg tgttccccgt aaacctggaa tgacaagaga tgatctcttc    240
aatataaatg ccgggatcgt taaaacactc tgtgaagcaa ttgcaaagcg atgtcctaag    300
gcgattgtca acgtgattag taatccggtt aactccactg tccccattgc ggctgaagtt    360
ttcaaaagag ccggtactta tgatcccaag agactthttg gagtgacaat gcttgatgtg    420
gttcgggcca atacgtttgt ggctgaagtt cttggtcttg atccaaggga tgtggatgtc    480
  
```

ccagttgtcg gaggacatgc cggaatcacc attttacctc tgctttctca ggttaaacca 540
cattcctctt tcacgacaaa ggaaattgag tacttg 576

<210> 292
<211> 592
<212> DNA
<213> *Trifolium repens*

<220>
<221> misc_feature
<222> (9)..(10)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (19)..(19)
<223> n is a, c, g, or t

<400> 292
tttggtttnn gttcttatnc tttatgatgt tgtaatactc ctggtgtact tctgatatta 60
gtatatggat actgctgctg ttgttcgagg gtttttgggg caaaatcagc ttgaggatgc 120
acttacaggt atggatttgg taatcattcc tgccggtgtt ccccgtaaac ctggaatgac 180
aagagatgat ctcttcaata taaatgccgg gatcgtaaa acactctgtg aagcaattgc 240
aaagcgatgt cctaaggcgg ttgtcaacgt gattagtaat cgggttaact ccactgtccc 300
cattgcggct gaagttttca aaagagccgg tacttatgat cccaagagac ttttgggagt 360
gacaatgctt gatgtggttc gggccaatac gtttgtggct gaagttcttg gtcttgatcc 420
aagggatgtg gatgtcccag ttgtcggagg acatgccgga atcaccattt tacctctgct 480
ttctcaggtt aaaccacatt cctctttcac gacaaaggaa attgagtact tgacagatcg 540
catacaaaac ggtggaactg aagttgttga ggccaaagct ggagctggct ct 592

<210> 293
<211> 599
<212> DNA
<213> *Trifolium repens*

<220>
<221> misc_feature
<222> (199)..(199)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (210)..(210)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (271)..(271)
<223> n is a, c, g, or t

<400> 293
gtaggcagca tctaacagca caatgaacat ggaaatgttt gctttggaaa ttatggacaa 60

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tacgggtcctt aaaaaatctg ttcttgtttt attttgact tttttgtttt ggaagatcgt      120
tagatacatg tgtggctctt tcaaagttga taaggaacca gtcactgtat tggtcactgg      180
tgctgcagga caaattggnt atgctcttgn tccaatgatt gcaagaggga tgatgctagg      240
cccaaataca cctggaattc ttcataatgct ngatattgaa ccaggattag aggcccttaa      300
aggggtgaag atggaactga ttgatggtgc tttcccactt cttagagggtg ttgttgctac      360
tacggatggt gttgaagcat gcaaggatgt taacattgct gttatgcttg gtggatcccc      420
aaggaaggaa ggaatggaaa gaaaagatgt aatgtctaag aatgtttcaa tttacaaggc      480
tcaagcttca gctttggagg agcatgctgc tgcagattgt aaagtgctag tggtagccaa      540
tccagcaaac acaaatgctc taatattgaa agaatttgct ccatcaatcc ctgagaaaa      599

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<210> 294
<211> 157
<212> PRT
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (24)..(24)
<223> Xaa can be any naturally occurring amino acid

```

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<220>
<221> misc_feature
<222> (28)..(28)
<223> Xaa can be any naturally occurring amino acid

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<220>
<221> misc_feature
<222> (48)..(48)
<223> Xaa can be any naturally occurring amino acid

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<400> 294

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Met Cys Gly Leu Leu Lys Val Asp Lys Glu Pro Val Thr Val Leu Val
1      5      10      15

```

```

Thr Gly Ala Ala Gly Gln Ile Xaa Tyr Ala Leu Xaa Pro Met Ile Ala
      20      25      30

```

```

Arg Gly Met Met Leu Gly Pro Asn Gln Pro Gly Ile Leu His Met Xaa
      35      40      45

```

```

Asp Ile Glu Pro Gly Leu Glu Ala Leu Lys Gly Val Lys Met Glu Leu
      50      55      60

```

```

Ile Asp Gly Ala Phe Pro Leu Leu Arg Gly Val Val Ala Thr Thr Asp
      65      70      75      80

```

```

Val Val Glu Ala Cys Lys Asp Val Asn Ile Ala Val Met Leu Gly Gly
      85      90      95

```

```

Ser Pro Arg Lys Glu Gly Met Glu Arg Lys Asp Val Met Ser Lys Asn
      100     105     110

```

Val Ser Ile Tyr Lys Ala Gln Ala Ser Ala Leu Glu Glu His Ala Ala
 115 120 125

Ala Asp Cys Lys Val Leu Val Val Ala Asn Pro Ala Asn Thr Asn Ala
 130 135 140

Leu Ile Leu Lys Glu Phe Ala Pro Ser Ile Pro Glu Lys
 145 150 155

<210> 295
 <211> 276
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (197)..(197)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (208)..(208)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (210)..(210)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (221)..(221)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (223)..(223)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (237)..(237)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (239)..(239)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (247)..(247)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (254)..(254)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (269)..(269)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (271)..(271)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (273)..(273)

<223> n is a, c, g, or t

<400> 295
 gtaggcatca taacagcaca atgaacatgg aaatgtttgc tttggaaatt atggacaata 60
 cggtccttaa aaaatctgtt cttgttttat tttgtacttt tttgttttgg aagatcggtta 120
 gatacatgtg tggctcttctc aaagttgata aggaaccagt cactgtattg gtcactgggtg 180
 ctgcaggaca aattggntat gctcttgntn caatgattgc nanagggatg atgctangnc 240
 caaatcnacc tggnattggt gatatgctng ntnttg 276

<210> 296

<211> 594

<212> DNA

<213> Trifolium repens

<220>

<221> misc_feature

<222> (2)..(3)

<223> n is a, c, g, or t

<400> 296
 gnnggatcta acagacaatg aacatggaaa tgtttgcttt ggaaattatg gacaatacgg 60
 tccttaaaaa atctgttctt gttttatatt gtactttttt gttttggaag atcgtttagat 120
 acatgtgtgg tcttctcaaa gttgataagg aaccagtcac tgtattgggtc actgggtgctg 180
 caggacaaat tggttatgct cttgttccaa tgattgcaag agggatgatg ctaggcccaa 240
 atcaacctgt aattcttcat atgcttgata ttgaaccagg attagaggcc cttaaagggg 300
 tgaagatgga actgattgat ggtgctttcc cacttcttag aggtgttggt gctactacgg 360
 atgttggtga agcatgcaag gatgttaaca ttgctgttat gcttggtgga tccccaagga 420
 aggaaggaat ggaaagaaaa gatgtaatgt ctaagaatgt ttcaatttac aaggctcaag 480
 cttcagcttt ggaggagcat gctgctgcag attgtaaagt gctagtggta gccaatccag 540
 caaacacaaa tgctctaata ttgaaagaat ttgctccatc aatccctgag aaaa 594

<210> 297

<211> 866

<212> DNA

<213> Trifolium repens

<220>

<221> misc_feature

<222> (2)..(3)

<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (38)..(38)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (280)..(280)
 <223> n is a, c, g, or t

<400> 297
 gnntacngct atcnaccctt ctttcttata caataatnat agataaattc atctgctaaa 60
 ttatggagcc aaattcagat gcaaatcaac gaatcgcaag aatctccggc cacctaaatc 120
 ctcccaattt caagatgaat gaacatggtg attcttcttt gacaagtttc cattgccgtg 180
 caaaagggtgg agcacctgga ttcaaagttg caatttttagg tgctgctggt ggcataggtc 240
 aacctctttc aatgtttgatg aagatgaatc ctttggttn agttcttcat ctttatgatg 300
 ttgttaatac tcctggtggt acttctgata ttagtcatat ggatactgct gctgttggtc 360
 gagggttttt ggggcaaat cagcttgagg atgcacttac aggtatggat ttggtaatca 420
 ttcctgccgg tgttccccgt aaacctggaa tgacaagaga tgatctcttc aatataaatg 480
 ccgggatcgt taaaacactc tgtgaagcaa ttgcaaagcg atgtcctaag gcgattgtca 540
 acgtgattag taatccggtt aactccactg tccccattgc ggctgaagtt ttcaaaagag 600
 ccggtactta tgatcccaag agacttttgg gagtgacaat gcttgatgtg gttcgggcca 660
 atacgtttgt ggctgaagtt cttggtcttg atccaagga tgtggatgtc ccagttgtcg 720
 gaggacatgc cggaatcacc attttacctc tgctttctca ggttaaacca cattcctctt 780
 tcacgacaaa ggaaattgag tacttgacag atcgcataca aaacggtgga actgaagttg 840
 ttgaggccaa agctggagct ggctct 866

<210> 298
 <211> 268
 <212> PRT
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (73)..(73)
 <223> Xaa can be any naturally occurring amino acid

<400> 298

Met Glu Pro Asn Ser Asp Ala Asn Gln Arg Ile Ala Arg Ile Ser Gly
 1 5 10 15

His Leu Asn Pro Pro Asn Phe Lys Met Asn Glu His Gly Asp Ser Ser
 20 25 30
 Leu Thr Ser Phe His Cys Arg Ala Lys Gly Gly Ala Pro Gly Phe Lys
 35 40 45
 Val Ala Ile Leu Gly Ala Ala Gly Gly Ile Gly Gln Pro Leu Ser Met
 50 55 60
 Leu Met Lys Met Asn Pro Leu Val Xaa Val Leu His Leu Tyr Asp Val
 65 70 75 80
 Val Asn Thr Pro Gly Val Thr Ser Asp Ile Ser His Met Asp Thr Ala
 85 90 95
 Ala Val Val Arg Gly Phe Leu Gly Gln Asn Gln Leu Glu Asp Ala Leu
 100 105 110
 Thr Gly Met Asp Leu Val Ile Ile Pro Ala Gly Val Pro Arg Lys Pro
 115 120 125
 Gly Met Thr Arg Asp Asp Leu Phe Asn Ile Asn Ala Gly Ile Val Lys
 130 135 140
 Thr Leu Cys Glu Ala Ile Ala Lys Arg Cys Pro Lys Ala Ile Val Asn
 145 150 155 160
 Val Ile Ser Asn Pro Val Asn Ser Thr Val Pro Ile Ala Ala Glu Val
 165 170 175
 Phe Lys Arg Ala Gly Thr Tyr Asp Pro Lys Arg Leu Leu Gly Val Thr
 180 185 190
 Met Leu Asp Val Val Arg Ala Asn Thr Phe Val Ala Glu Val Leu Gly
 195 200 205
 Leu Asp Pro Arg Asp Val Asp Val Pro Val Val Gly Gly His Ala Gly
 210 215 220
 Ile Thr Ile Leu Pro Leu Leu Ser Gln Val Lys Pro His Ser Ser Phe
 225 230 235 240
 Thr Thr Lys Glu Ile Glu Tyr Leu Thr Asp Arg Ile Gln Asn Gly Gly
 245 250 255
 Thr Glu Val Val Glu Ala Lys Ala Gly Ala Gly Ser
 260 265

<210> 299
 <211> 572
 <212> DNA

<213> Trifolium repens

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (38)..(38)
 <223> n is a, c, g, or t

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<400> 299
gnntacngct atcnaccctt ctttcttata caataatnat agataaattc atctgctaaa      60
ttatggagcc aaattcagat gcaaatcaac gaatcgcaag aatctccggc cacctaaatc      120
ctcccaattt caagatgaat gaacatggtg attcttcttt gacaagtttc cattgccgtg      180
caaaagggtgg agcacctgga ttcaaagttg caattttagg tgctgctggt ggcataaggtc      240
aacctctttc aatgttgatg aagatgaatc ccttggttta gttcttcatc tttatgatgt      300
tgттаataact cctggtgtta cttctgatat tagtcacatg gatactggtg ctgttgttcg      360
aggatttttg gggcaaaatc agcttgagga tgcacttaca ggtatggatt tggtaatcat      420
tcctgctggt gttccccgta aacctggaat gacaagagat gatctcttca atataaatgc      480
cgggatcggt aaaacactct gtgaagcaat tgcgaagcga tgcctaagg cgattgtcaa      540
cgtgattagt aatccgggta actccactgt cc                                     572

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<210> 300
 <211> 576
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> n is a, c, g, or t

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<400> 300
gtgncatagg tnaccctctt tnatgttgat gaagatgaat cctatgggtt agttcttcat      60

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ctttatgatg ttgttaatac tcctggtggt acttctgata ttagtcatat ggatactgct 120
gctgttggtc gaggggtttt ggggcaaaat cagcttgagg atgcacttac aggtatggat 180
ttggtaatca ttcctgccgg tggtccccgt aaacctggaa tgacaagaga tgatctcttc 240
aatataaatg ccgggatcgt taaaacactc tgtgaagcaa ttgcaaagcg atgtcctaag 300
gcgattgtca acgtgattag taatccgggt aactccactg tccccattgc ggctgaagtt 360
ttcaaaagag ccggtactta tgatcccaag agacttttgg gagtgacaat gcttgatgtg 420
gttcggggcca atacgtttgt ggctgaagtt cttggtcttg atccaaggga tgtggatgtc 480
ccagttgtcg gaggacatgc cggaatcacc attttacctc tgctttctca gggttaaacca 540
cattcctctt tcacgacaaa ggaaattgag tacttg 576

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<210> 301
<211> 592
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (9)..(10)
<223> n is a, c, g, or t

```

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<220>
<221> misc_feature
<222> (19)..(19)
<223> n is a, c, g, or t

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<400> 301
tttggtttnn gttcttatnc tttatgatgt tgtaatactc ctggtgtact tctgatatta 60
gtatatggat actgctgctg ttgttcgagg gtttttgggg caaaatcagc ttgaggatgc 120
acttacaggt atggatttgg taatcattcc tgccggtggt ccccgtaaac ctggaatgac 180
aagagatgat ctcttcaata taaatgccgg gatcggtaaa acactctgtg aagcaattgc 240
aaagcgatgt cctaaggcgg ttgtcaacgt gattagtaat ccggttaact ccactgtccc 300
cattgcggct gaagttttca aaagagccgg tacttatgat cccaagagac ttttgggagt 360
gacaatgctt gatgtgggtc gggccaatac gtttgtggct gaagttcttg gtcttgatcc 420
aagggatgtg gatgtcccag ttgtcggagg acatgccgga atcaccattt tacctctgct 480
ttctcagggt aaaccacatt cctctttcac gacaaaggaa attgagtact tgacagatcg 540
catacaaaac ggtggaactg aagttgttga ggccaaagct ggagctggct ct 592

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<210> 302
<211> 647
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

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<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<400> 302
 gnaatcctct ttgnctcccc taccctcctt ttttttcctt ccttcttaca ctttctctta 60
 tcaactttcc acctctgaac aaaacttcaa tctttttctca ttttcttata ccctttttaca 120
 aactttcttca taaagtgtta gggtttttttt tattactctt ttcaagaacc acaaaaacag 180
 tgtttcttga attcttttga atttttttttt tcctgcaacc atggccttgg cacacttaaa 240
 caacccctact tgctcaaaaa ctcaacttca ctcatcacia ctctcatttc tctctaggac 300
 tctccctagg caatatcact gtacttttgc accacttcac agaactcaac atggcagaat 360
 tacttgttct gttgcaccaa atcaagtga ggctccagct gtacaatcac aggatcccaa 420
 gaataagcct gattgctatg gtgtcttctg ccttacctat gatttgaagg ctgaagagga 480
 gacaaaatcc tggaagaaat taatcaacat tgcagtctca ggtgctgctg gaatgatttc 540
 caatcatcta cttttcaagc ttgcatctgg tgaagttttt ggcccaaadc aacctattgc 600
 gctgaaatta ttaggatcag aaaggctcctt ccaagctctt gaagggtg 647

<210> 303
 <211> 142
 <212> PRT
 <213> Trifolium repens

<400> 303

Met Ala Leu Ala His Leu Asn Asn Pro Thr Cys Ser Lys Thr Gln Leu
 1 5 10 15
 His Ser Ser Gln Leu Ser Phe Leu Ser Arg Thr Leu Pro Arg Gln Tyr
 20 25 30
 His Cys Thr Phe Ala Pro Leu His Arg Thr Gln His Gly Arg Ile Thr
 35 40 45
 Cys Ser Val Ala Pro Asn Gln Val Gln Ala Pro Ala Val Gln Ser Gln
 50 55 60
 Asp Pro Lys Asn Lys Pro Asp Cys Tyr Gly Val Phe Cys Leu Thr Tyr
 65 70 75 80
 Asp Leu Lys Ala Glu Glu Glu Thr Lys Ser Trp Lys Lys Leu Ile Asn
 85 90 95
 Ile Ala Val Ser Gly Ala Ala Gly Met Ile Ser Asn His Leu Leu Phe
 100 105 110
 Lys Leu Ala Ser Gly Glu Val Phe Gly Pro Asn Gln Pro Ile Ala Leu
 115 120 125

Lys Leu Leu Gly Ser Glu Arg Ser Phe Gln Ala Leu Glu Gly
 130 135 140

<210> 304
 <211> 602
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<400> 304
 gnaatcctct ttgnctcccc taccctcctt ttttttcctt cttctttaca cttctcttct 60
 caactttcca cctctgaaca aaacttctat cttttctcat tttctttatac ctttttagaa 120
 acttcttcat aaagtgttat ttttttttat tactcttttc aagaatcaca aaaacagtgt 180
 ttcttgaatt ctttgaatt ttttttttcc tgcaaccatg gccttggcac agttaaacia 240
 tcccacttgc tcaaaaactc aacttcactc atcacaactc tcatttttgt ctaggactct 300
 ccctaggcaa tatcactgta cttttgcacc acttcacaga actcaacatg gcagaattac 360
 ttgttctgtt gcaccaaatac aagtgcaggc tccagctgta caatcacagg atcccaagaa 420
 taagcctgat tgctatggtg tcttctgcct tacctatgat ttgaaggctg aagaggagac 480
 aaaatcctgg aagaaattaa tcaacattgc agtctcaggt gctgctggaa tgatttccaa 540
 tcatctactt ttcaagcttg catctggtga agtttttggg ccaaataaac ctattgctgt 600
 ga 602

<210> 305
 <211> 599
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (27)..(27)
 <223> n is a, c, g, or t

<400> 305
 ttcttagacc ttctcttata actttcnacc tctgaaccaa attaatcttt tctattttct 60
 tataacccttt tacaaacttc ttcataaagt gttgggtttt tttttattac tcttttcaag 120
 aaccacaaaa acagtgtttc ttgaattctt ggaatttttt tttcctgcaa ccatggcttt 180
 ggcacactta aacaacccca cttgctcaaa aactcaactt cattcatcac agctctcatt 240
 tctctctagg actctcccta ggcaatatca ctgtactttt gcaccacttc acagaactca 300
 acatggcaga attacttggt ctgttgacc aaatcaagtg caggctccag ctgtacaatc 360

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acaggatccc aagaataagc ctgattgcta tgggtgtcttc tgccttacct atgatttgaa 420
ggctgaagag gagacaaaat cctggaagaa attaataaac attgcagtct caggtgctgc 480
tggaatgatt tccaatcatc tacttttcaa gcttgcattt ggtgaagttt ttggcccaaa 540
tcaacctatt gcgctgaaat tattaggatc agaaaggtcc ttccaagctc ttgaaggtg 599

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<210> 306
<211> 569
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (8)..(8)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (12)..(12)
<223> n is a, c, g, or t

```

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<220>
<221> misc_feature
<222> (14)..(14)
<223> n is a, c, g, or t

```

```

<400> 306
gcaaagcnc t cncngacctg gtgtggagcg agcagctttg ctagacataa atgggcagat 60
ttttgcggag cagggaaaag ctctaaatgc agtcgcatct cgcaatgtca aagttatagt 120
tgtgggaaac ccttgcaata caaatgcatt aatatgcttg aagaatgctc caaatattcc 180
tgcaaaaaat tttcatgctt taacccgttt agatgagaac agagcaaaat gtcagctagc 240
cctcaaggca ggtgtcttct acgataaagt gtcgaatatg acgatatggg gaaaccactc 300
aactactcag gtccccgatt tcttaaagtc cagaatcgat ggtttgcctg tcaaagaagt 360
gattaaggat caaaagtggg tagaggaaga gttcaccgaa aaagttcaaa agagaggtgg 420
cgtgcttatt caaaagtggg gaagatcgtc tgctgcatca acttctgtgt cgatagttga 480
tgccatacga tctttgatca ctctactcc ggagggtgat tggttttcta ctggtgtgta 540
tacagctgga aatccttatg gaatagctg 569

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<210> 307
<211> 189
<212> PRT
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (3)..(5)
<223> Xaa can be any naturally occurring amino acid

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<400> 307

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Gln Ser Xaa Xaa Xaa Pro Gly Val Glu Arg Ala Ala Leu Leu Asp Ile
1       5       10      15

```

Asn Gly Gln Ile Phe Ala Glu Gln Gly Lys Ala Leu Asn Ala Val Ala
20 25 30

Ser Arg Asn Val Lys Val Ile Val Val Gly Asn Pro Cys Asn Thr Asn
35 40 45

Ala Leu Ile Cys Leu Lys Asn Ala Pro Asn Ile Pro Ala Lys Asn Phe
50 55 60

His Ala Leu Thr Arg Leu Asp Glu Asn Arg Ala Lys Cys Gln Leu Ala
65 70 75 80

Leu Lys Ala Gly Val Phe Tyr Asp Lys Val Ser Asn Met Thr Ile Trp
85 90 95

Gly Asn His Ser Thr Thr Gln Val Pro Asp Phe Leu Asn Ala Arg Ile
100 105 110

Asp Gly Leu Pro Val Lys Glu Val Ile Lys Asp Gln Lys Trp Leu Glu
115 120 125

Glu Glu Phe Thr Glu Lys Val Gln Lys Arg Gly Gly Val Leu Ile Gln
130 135 140

Lys Trp Gly Arg Ser Ser Ala Ala Ser Thr Ser Val Ser Ile Val Asp
145 150 155 160

Ala Ile Arg Ser Leu Ile Thr Pro Thr Pro Glu Gly Asp Trp Phe Ser
165 170 175

Thr Gly Val Tyr Thr Ala Gly Asn Pro Tyr Gly Ile Ala
180 185

<210> 308
<211> 558
<212> DNA
<213> Trifolium repens

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

<400> 308
gngtagaacc cgtgaagcct tttccctccg gtctccccgc ttgcgccgtc gccgtcaatt 60
gctgcttg tg tcgtcgccctc cagctcctcc tcttccactg tgccaaccga attacaaacc 120
aaaaaaatgg cgacttgttt gcaaacacaa ctcctccaca caagaccttt tcagtttcgg 180
tcttcctcgt cgacaagacc aacttcctta agatgttccg ccgccacccc atccaccaaa 240
aaatcctaca aaatcactct tcttccgggt gatggcatag gtcctgaagt cgtttccgctc 300

gctaaagacg ttcttctcct cactggatcc atccatggga ttaaacttga gtttcaagag 360
 aagcttttgg gtggtgctgc tcttgatgct actggagttc ctttacctga tgatactctt 420
 tctgttgcta agcaatctga tgctgttctt cttggtgcta ttggagggtg taaatgggat 480
 aaaaatgaga aacagctgaa gccagaaact ggattgcttc agctacgaga agggcttcaa 540
 gtttttgcta atctcaga 558

<210> 309
 <211> 144
 <212> PRT
 <213> Trifolium repens

<400> 309

Met Ala Thr Cys Leu Gln Thr Gln Leu Leu His Thr Arg Pro Phe Gln
 1 5 10 15

Phe Arg Ser Ser Ser Ser Thr Arg Pro Thr Ser Leu Arg Cys Ser Ala
 20 25 30

Ala Thr Pro Ser Thr Lys Lys Ser Tyr Lys Ile Thr Leu Leu Pro Gly
 35 40 45

Asp Gly Ile Gly Pro Glu Val Val Ser Val Ala Lys Asp Val Leu Leu
 50 55 60

Leu Thr Gly Ser Ile His Gly Ile Lys Leu Glu Phe Gln Glu Lys Leu
 65 70 75 80

Leu Gly Gly Ala Ala Leu Asp Ala Thr Gly Val Pro Leu Pro Asp Asp
 85 90 95

Thr Leu Ser Val Ala Lys Gln Ser Asp Ala Val Leu Leu Gly Ala Ile
 100 105 110

Gly Gly Tyr Lys Trp Asp Lys Asn Glu Lys Gln Leu Lys Pro Glu Thr
 115 120 125

Gly Leu Leu Gln Leu Arg Glu Gly Leu Gln Val Phe Ala Asn Leu Arg
 130 135 140

<210> 310
 <211> 713
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(9)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (663)..(663)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (713)..(713)

<223> n is a, c, g, or t

<400> 310

gnnacattnc cgaatgctgc tgaactaggg agtgattccc ttggagccta tgtcatctct	60
atggcctcaa gtgcaagcga tgtccttgca gtagagcttt tacagaagga tgcacgtctt	120
acagttttgtg gagaattagg aagagcatgt ccgggtggaa cgcttcgggt ggttcctcta	180
tttgaaactg tgcaagacct gagaggagct ggtgcagtta tcagaaaact tttatcaatc	240
gattggtacc gccaacacat cattaagaac cataacggac accaagaggt tatggtcggt	300
tattctgatt ctggtaaaga tgccgggagc tttactgctg cttgggaact ttacaaagct	360
caagaggatg tagtggctgc ttgcaataag tacgatacta aggttacttt gttccacggc	420
cgcgaggagg gtattggacg tggcggaggc ccaacatattc tggctattca gtcccagcca	480
cctggctctg tgatgggaac ctttcggtca actgagcagg gagagatggt gcaggccgag	540
tttgggttgc cacagacagc agttagacaa cttgaaatat acacaacagc tgtgctactt	600
gctacacgtc gtccaccact cccacctcga gaagaaaaat ggcgtaatct aatggaagac	660
atntcaaaaa tcagttgtca gtcctaccgc agtgtagtct atgaaaatcc agn	713

<210> 311

<211> 237

<212> PRT

<213> Trifolium repens

<220>

<221> misc_feature

<222> (1)..(1)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (221)..(221)

<223> Xaa can be any naturally occurring amino acid

<400> 311

Xaa	Thr	Xaa	Pro	Asn	Ala	Ala	Glu	Leu	Gly	Ser	Asp	Ser	Leu	Gly	Ala
1				5				10					15		

Tyr	Val	Ile	Ser	Met	Ala	Ser	Ser	Ala	Ser	Asp	Val	Leu	Ala	Val	Glu
			20					25				30			

Leu Leu Gln Lys Asp Ala Arg Leu Thr Val Cys Gly Glu Leu Gly Arg
 35 40 45

Ala Cys Pro Gly Gly Thr Leu Arg Val Val Pro Leu Phe Glu Thr Val
 50 55 60

Gln Asp Leu Arg Gly Ala Gly Ala Val Ile Arg Lys Leu Leu Ser Ile
 65 70 75 80

Asp Trp Tyr Arg Gln His Ile Ile Lys Asn His Asn Gly His Gln Glu
 85 90 95

Val Met Val Gly Tyr Ser Asp Ser Gly Lys Asp Ala Gly Arg Phe Thr
 100 105 110

Ala Ala Trp Glu Leu Tyr Lys Ala Gln Glu Asp Val Val Ala Ala Cys
 115 120 125

Asn Lys Tyr Asp Thr Lys Val Thr Leu Phe His Gly Arg Gly Gly Ser
 130 135 140

Ile Gly Arg Gly Gly Gly Pro Thr Tyr Leu Ala Ile Gln Ser Gln Pro
 145 150 155 160

Pro Gly Ser Val Met Gly Thr Leu Arg Ser Thr Glu Gln Gly Glu Met
 165 170 175

Val Gln Ala Glu Phe Gly Leu Pro Gln Thr Ala Val Arg Gln Leu Glu
 180 185 190

Ile Tyr Thr Thr Ala Val Leu Leu Ala Thr Arg Arg Pro Pro Leu Pro
 195 200 205

Pro Arg Glu Glu Lys Trp Arg Asn Leu Met Glu Asp Xaa Ser Lys Ile
 210 215 220

Ser Cys Gln Ser Tyr Arg Ser Val Val Tyr Glu Asn Pro
 225 230 235

<210> 312
 <211> 576
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (575)..(576)
 <223> n is a, c, g, or t

<400> 312
 gnnacattnc cgaatgctgc tgaactaggg agtgattccc ttggagccta tgtcatctct 60
 atggcctcaa gtgcaagcga tgccttgca gtagagcttt tcagaaggat gcacgacttg 120
 ctgctattgg agagtccgga agagcatgtc ctggtggaac gttgcgggtt gtccctctat 180
 ttgaaactgt gaaggaccta agaggagctg gttcagttat ccggaaactt ttatcgatag 240
 actggtaccg tgaacacatc attaagaacc acaatggaca tcaagagggt atggttggat 300
 attctgattc gggtaaagat gctggccgct tctactgctgc ttgggaactt taaaaagctc 360
 aggaggatgt tgtagctgct tgcaatgatt atggtattaa agttacactg tttcatggcc 420
 gtggaggcag tattggtcga ggtggtggcc ctacatatct ggctattcag tcccaaccac 480
 ctgggtctgt gatgggaaca cttcgggtcta ctgagcaggg agaaatggta gaggccaagt 540
 ttgggttacc acagatagct gttagacaac ttgann 576

<210> 313
 <211> 570
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (570)..(570)
 <223> n is a, c, g, or t

<400> 313
 gnacttttac agaaggatgc acgtcttaca gtttgtggag aattaggaag agcatgtccg 60
 ggtggaacgc ttcgggtggt tcctctatth gaaactgtgc aagacctgag aggagctggt 120
 gcagttatca gaaaactttt atcaatcgat tggtagccgc aacacatcat taagaaccat 180
 aacggacacc aagagggttat ggtcgggttat tctgattctg gtaaagatgc cgggcgcttt 240
 actgctgctt gggaacttta caaagctcaa gaggatgtag tggctgcttg caataagtac 300
 gatactaagg ttactttggt ccacggccgc ggaggagagta ttggacgtgg cggaggccca 360
 acatatctgg ctattcagtc ccagccacct ggctctgtga tgggaaccct tcggtcaact 420
 gagcagggag agatggtgca ggccgagttt gggttgccac agacagcagt tagacaactt 480
 gaaatataca caacagctgt gctacttgct acacgtcgtc caccactccc acctcgagaa 540
 gaaaaatggc gtaatctaata ggaagacatn 570

<210> 314
 <211> 619

<212> DNA
<213> *Trifolium repens*

<220>
<221> misc_feature
<222> (13)..(13)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (619)..(619)
<223> n is a, c, g, or t

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<400> 314
agcttttaca ganggatgca cgtcttacag tttgtggaga attaggaaga gcatgtccgg      60
gtggaacgct tcgggtgggt cctctatttg aaactgtgca agacctgaga ggagctgggtg      120
cagttatcag aaaactttta tcaatcgatt ggtaccgcca acacatcatt aagaaccata      180
acggacacca agaggttatg gtcggttatt ctgattctgg taaagatgcc gggcgcttta      240
ctgctgcttg ggaactttac aaagctcaag aggatgtagt ggctgcttgc aataagtacg      300
atactaaggt tactttgttc cacggccgcg gaggagtagt tggacgtggc ggaggcccaa      360
catatctggc tattcagtc cagccacctg gctctgtgat gggaacctt cggtcaactg      420
agcagggaga gatggtgcag gccgagtttg ggttgccaca gacagcagtt agacaacttg      480
aaatatacac aacagctgtg ctacttgcta cacgtcgtcc accactcca cctcgagaag      540
aaaaatggcg taatctaata gaagacattt caaaaatcag ttgtcagtcc taccgcagtg      600
tagtctatga aaatccagn                                     619

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<210> 315
<211> 598
<212> DNA
<213> *Trifolium repens*

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

```

<400> 315
gnaagggaca agctctatcg tactcgtgag cggctctcgt atctcttagc tcatggctat      60
tctgaaattc ctgaagaagc cacattcacc gatgttgatg agttcttgga acctcttgaa      120
ctatgctaca gatcactctg tgcttggttg gatcgtgcga ttgccgatgg aagccttctt      180
gatttcttga ggcaagtttc cacttttgga ctgtcactgg taagacttga tataaggcaa      240
gagtcagatc gtcacacgga cgtgatggat gccattacca aacatttgga aattggatcc      300
taccaagact ggtctgaaga aaaaagacag gaatggcttt tgtctgagtt gggttgcaaa      360
aggccgcttt ttggacctga cctacctcaa accgatgaaa ttagagaagt tttagagaca      420
tttcatgtca tagcagaact tccatcagac aactttggag cctatatcat ttcgatggca      480
actgccccgt ctgatgtgct agcggttgaa cttcttcaac gtgaatgcaa aatcaagaat      540

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ccgttaagag ttgttccgtt gtttgagaaa cttgctgac tcgagctgc tcctgctg 598

<210> 316
 <211> 199
 <212> PRT
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (1)..(1)
 <223> Xaa can be any naturally occurring amino acid
 <400> 316

Xaa Arg Asp Lys Leu Tyr Arg Thr Arg Glu Arg Ser Arg Tyr Leu Leu
 1 5 10 15

Ala His Gly Tyr Ser Glu Ile Pro Glu Glu Ala Thr Phe Thr Asp Val
 20 25 30

Asp Glu Phe Leu Glu Pro Leu Glu Leu Cys Tyr Arg Ser Leu Cys Ala
 35 40 45

Cys Gly Asp Arg Ala Ile Ala Asp Gly Ser Leu Leu Asp Phe Leu Arg
 50 55 60

Gln Val Ser Thr Phe Gly Leu Ser Leu Val Arg Leu Asp Ile Arg Gln
 65 70 75 80

Glu Ser Asp Arg His Thr Asp Val Met Asp Ala Ile Thr Lys His Leu
 85 90 95

Glu Ile Gly Ser Tyr Gln Asp Trp Ser Glu Glu Lys Arg Gln Glu Trp
 100 105 110

Leu Leu Ser Glu Leu Val Gly Lys Arg Pro Leu Phe Gly Pro Asp Leu
 115 120 125

Pro Gln Thr Asp Glu Ile Arg Glu Val Leu Glu Thr Phe His Val Ile
 130 135 140

Ala Glu Leu Pro Ser Asp Asn Phe Gly Ala Tyr Ile Ile Ser Met Ala
 145 150 155 160

Thr Ala Pro Ser Asp Val Leu Ala Val Glu Leu Leu Gln Arg Glu Cys
 165 170 175

Lys Ile Lys Asn Pro Leu Arg Val Val Pro Leu Phe Glu Lys Leu Ala
 180 185 190

Asp Leu Glu Ser Ala Pro Ala
 195

<210> 317
 <211> 598
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<400> 317
 gnaagggaca agctctatcg tactcgtgag cggctctcgct atctcttagc tcatggctat 60
 tctgaaattc ctgaagaagc cacattcacc gatgttgatg agttcttgga acctcttgaa 120
 ctatgctaca gatcactctg tgcttgtggt gatcgtgcga ttgccgatgg aagccttctt 180
 gatttcttga ggcaagtttc cacttttgga ctgtcactgg taagacttga tataaggcaa 240
 gagtcagatc gtcacacgga cgtgatggat gccattacca aacatttgga aattggatcc 300
 taccaagact ggtctgaaga aaaaagacag gaatggcttt tgtctgagtt ggttggcaaa 360
 aggccgcttt ttggacctga cctacctcaa accgatgaaa ttagagaagt ttagagaca 420
 tttcatgtca tagcagaact tccatcagac aactttggag cctatatcat ttcgatggca 480
 actgccccgt ctgatgtgct agcggttgaa cttcttcaac gtgaatgcaa aatcaagaat 540
 ccgttaagag ttgttccggt gtttgagaaa cttgctgac tcgagctctgc tcctgctg 598

<210> 318
 <211> 584
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (584)..(584)
 <223> n is a, c, g, or t

<400> 318
 gtaagggaca agctctatcg tactcgtgag cggctctcgct atctcttagc tcatggctat 60
 tctgaaattc ctgaagaagc cacattcacc gatgttgatg agttcttgga acctcttgaa 120
 ctatgctaca gatcactctg tgcttgtggt gatcgtgcga ttgccgatgg aagccttctt 180
 gatttcttga ggcaagtttc cacttttgga ctgtcactgg taagacttga tataaggcaa 240
 gagtcagatc gtcacacgga cgtgatggat gccattacca aacatttgga aattggatcc 300
 taccaagact ggtctgaaga aaaaagacag gaatggcttt tgtctgagtt ggttggcaaa 360
 aggccgcttt ttggacctga cctacctcaa accgatgaaa ttagagaagt ttagagaca 420
 tttcatgtca tagcagaact tccatcagac aactttggag cctatatcat ttcgatggca 480
 actgccccgt ctgatgtgct agcggttgaa cttcttcaac gtgaatgcaa aatcaagaat 540
 ccgttaagag ttgttccggt gtttgagaaa cttgctgac tcgn 584

<210> 319
 <211> 575

<212> DNA
<213> *Trifolium repens*

<220>
<221> misc_feature
<222> (15)..(15)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (575)..(575)
<223> n is a, c, g, or t

<400> 319
gtcacatgac aaacnatatc tccctttctc taactccgtg atcaaggcgt tagttagtta 60
cacaaattgc tgttagggtt cgttggtactt tcccgtgcaa tccatagtat cttggaggaa 120
caaactagat tttccaccta ggctgcacg agattttcct cttcactatt tttctttttc 180
atataataac tcaacacttt ttctagctac ttactagtac tgtgtaacac aaattttatt 240
cattatggct actcctcgca acattgaaaa aatggcttca attgatgctc aattgagact 300
actagcacca aggaaagttt ctgatgatga taaacttgtc gagtatgatg ctttggttatt 360
ggatcgattc cttgacattc ttcaagattt gcatggagaa gatatcagac aaactgttca 420
agattggtat gagttatcgg cagagtatga aggggagctt aagccggaga aattggagga 480
acttggaat atgcttactg gtcttgatgc tggagattct attgttatag caaatcatt 540
ttctcatatg ctttaatttg caaacttggc agagn 575

<210> 320
<211> 110
<212> PRT
<213> *Trifolium repens*

<400> 320
Met Ala Thr Pro Arg Asn Ile Glu Lys Met Ala Ser Ile Asp Ala Gln
1 5 10 15
Leu Arg Leu Leu Ala Pro Arg Lys Val Ser Asp Asp Asp Lys Leu Val
20 25 30
Glu Tyr Asp Ala Leu Leu Leu Asp Arg Phe Leu Asp Ile Leu Gln Asp
35 40 45
Leu His Gly Glu Asp Ile Arg Gln Thr Val Gln Asp Cys Tyr Glu Leu
50 55 60
Ser Ala Glu Tyr Glu Gly Glu Leu Lys Pro Glu Lys Leu Glu Glu Leu
65 70 75 80
Gly Asn Met Leu Thr Gly Leu Asp Ala Gly Asp Ser Ile Val Ile Ala
85 90 95
Lys Ser Phe Ser His Met Leu Asn Leu Ala Asn Leu Ala Glu

100

105

110

<210> 321
 <211> 575
 <212> DNA
 <213> *Trifolium repens*

<220>
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 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (575)..(575)
 <223> n is a, c, g, or t

<400> 321
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 cacaaattgc tgttagggtt cgttgtactt tcccgtgcaa tccatagtat cttggaggaa 120
 caaactagat tttccaccta ggctcgtcac agattttcct cttcactatt tttctttttc 180
 atataataac tcaacacttt ttctagctac ttactagtac tgtgtaacac aaattttatt 240
 cattatggct actcctcgca acattgaaaa aatggcttca attgatgctc aattgagact 300
 actagcacca aggaaagttt ctgatgatga taaacttgct gagtatgatg ctttgttatt 360
 ggatcgattc cttgacattc ttcaagattt gcatggagaa gatatcagac aaactgttca 420
 agattgttat gagttatcgg cagagtatga aggggagctt atgccggaga aattggagga 480
 acttggaat atgcttactg gtcttgatgc tggagattct attgttatag caaatcatt 540
 ttctcatatg cttaatttgg caaacttggc agagn 575

<210> 322
 <211> 537
 <212> DNA
 <213> *Trifolium repens*

<220>
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 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
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 <222> (537)..(537)
 <223> n is a, c, g, or t

<400> 322
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 ttgctgttag gtttcgttgt actttcccgt gcaatccata gtatcttggga ggaacaaact 120
 agattttcca cctaggttgt cacgagattt tcctcttcac tatttttctt tttcatataa 180
 taattcaaca ctttttctag ctacttacta gtactgtgta acacaaattt tattcattat 240
 ggctactcct cgcaacattg aaaaaatggc ttcaattgat gctcaattga gactactagc 300

accaaggaaa gtttctgatg atgataaact tgtcgagtat gatgctttgt tattggatcg	360
attccttgac attcttcaag atttgcattg agaagatatc agacaaactg ttcaagattg	420
ttatgagtta tcggcagagt atgaagggga gcttaagccg gagaaattgg aggaacttgg	480
gaatatgctt actggtcttg atgctggaga ttctattgtt atagcaaaat cattttt	537

<210> 323
 <211> 854
 <212> DNA
 <213> *Trifolium repens*

<220>
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 <222> (583)..(583)
 <223> n is a, c, g, or t

<220>
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 <222> (589)..(589)
 <223> n is a, c, g, or t

<220>
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 <222> (596)..(596)
 <223> n is a, c, g, or t

<220>
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 <222> (602)..(602)
 <223> n is a, c, g, or t

<220>
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 <222> (608)..(608)
 <223> n is a, c, g, or t

<220>
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 <222> (708)..(708)
 <223> n is a, c, g, or t

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 <222> (737)..(737)
 <223> n is a, c, g, or t

<220>
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 <223> n is a, c, g, or t

<220>
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 <222> (775)..(775)
 <223> n is a, c, g, or t

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 <222> (789)..(789)

<223> n is a, c, g, or t

<220>

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<222> (795)..(797)

<223> n is a, c, g, or t

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<222> (816)..(816)

<223> n is a, c, g, or t

<220>

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<222> (830)..(830)

<223> n is a, c, g, or t

<220>

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<222> (834)..(834)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (853)..(854)

<223> n is a, c, g, or t

<400> 323

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tgaagagctt catagatcct caaagaaaga tgcaaaacat tatattgagt tttggaaaca	120
gattcctcca aacgagccat atcgtgttat tcttgagggt gtgagggaca aactgtataa	180
tacacgtgaa cgtgctcgac agttattagc aaatggaacc tctgacatcc ttgaagagac	240
aaccttcacg aatgttgagc agtttctgga gcctcttgaa ctgtgttata ggtcactttg	300
tgcatgtggt gaccgatcaa tagcagacgg aagccttctt gatttcttgc gacaagtttc	360
tacatttgga ctttcacttg taagactcga catccgtcaa gagtcagaca ggcacacaga	420
cgttatggat gcaattacaa aacacttgga gattggatct taccgagaat ggtcgggaaga	480
acgcaggcag gaatggctct tgtctgagct tagtggaana cgccctctct tcggccatga	540
tcttcctaag acagaagaaa ttgccgatgt tttagatacc ttncacgtna tttcanaact	600
tnctcanat agctttggtg cctatatcat ctcaatggca acctcccat ctgatgtgct	660
agctgtcgag cttttacaac gtgaatgtca tgtgaagcag ccgttaanag ttgttccact	720
gtttgaaaag ctcgccngtc ttgagtctgc tcctgctgcg gnagcgcgtt tttntttaga	780
ttgggncana accgnnntaa tggaaagcag aagtnttgat aggtactcan actngggaaa	840
agatgctggc cgnn	854

<210> 324

<211> 284

<212> PRT

<213> Trifolium repens

<220>

<221> misc_feature

<222> (194)..(194)

<223> xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (196)..(196)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (199)..(199)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (201)..(201)

<223> Xaa can be any naturally occurring amino acid

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<222> (203)..(203)

<223> Xaa can be any naturally occurring amino acid

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<222> (236)..(236)

<223> Xaa can be any naturally occurring amino acid

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<221> misc_feature

<222> (246)..(246)

<223> Xaa can be any naturally occurring amino acid

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<222> (254)..(254)

<223> Xaa can be any naturally occurring amino acid

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<221> misc_feature

<222> (258)..(258)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (262)..(263)

<223> Xaa can be any naturally occurring amino acid

<220>

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<222> (265)..(266)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (272)..(272)

<223> Xaa can be any naturally occurring amino acid

<220>

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<222> (277)..(278)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature

<222> (284)..(284)

<223> Xaa can be any naturally occurring amino acid

<400> 324

Glu Asp Leu Met Phe Glu Leu Ser Met Trp Arg Cys Asn Asp Glu Leu
 1 5 10 15
 Arg Val Arg Ala Glu Glu Leu His Arg Ser Ser Lys Lys Asp Ala Lys
 20 25 30
 His Tyr Ile Glu Phe Trp Lys Gln Ile Pro Pro Asn Glu Pro Tyr Arg
 35 40 45
 Val Ile Leu Gly Gly Val Arg Asp Lys Leu Tyr Asn Thr Arg Glu Arg
 50 55 60
 Ala Arg Gln Leu Leu Ala Asn Gly Thr Ser Asp Ile Leu Glu Glu Thr
 65 70 75 80
 Thr Phe Thr Asn Val Glu Gln Phe Leu Glu Pro Leu Glu Leu Cys Tyr
 85 90 95
 Arg Ser Leu Cys Ala Cys Gly Asp Arg Ser Ile Ala Asp Gly Ser Leu
 100 105 110
 Leu Asp Phe Leu Arg Gln Val Ser Thr Phe Gly Leu Ser Leu Val Arg
 115 120 125
 Leu Asp Ile Arg Gln Glu Ser Asp Arg His Thr Asp Val Met Asp Ala
 130 135 140
 Ile Thr Lys His Leu Glu Ile Gly Ser Tyr Arg Glu Trp Ser Glu Glu
 145 150 155 160
 Arg Arg Gln Glu Trp Leu Leu Ser Glu Leu Ser Gly Lys Arg Pro Leu
 165 170 175
 Phe Gly His Asp Leu Pro Lys Thr Glu Glu Ile Ala Asp Val Leu Asp
 180 185 190
 Thr Xaa His Xaa Ile Ser Xaa Leu Xaa Ser Xaa Ser Phe Gly Ala Tyr
 195 200 205
 Ile Ile Ser Met Ala Thr Ser Pro Ser Asp Val Leu Ala Val Glu Leu
 210 215 220
 Leu Gln Arg Glu Cys His Val Lys Gln Pro Leu Xaa Val Val Pro Leu
 225 230 235 240
 Phe Glu Lys Leu Ala Xaa Leu Glu Ser Ala Pro Ala Ala Xaa Ala Arg
 245 250 255
 Phe Xaa Leu Asp Trp Xaa Xaa Thr Xaa Xaa Met Glu Ser Arg Ser Xaa
 260 265 270

Asp Arg Tyr Ser Xaa Xaa Gly Lys Asp Ala Gly Xaa
 275 280

<210> 325
 <211> 693
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (573)..(573)
 <223> n is a, c, g, or t

<220>
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 <222> (592)..(593)
 <223> n is a, c, g, or t

<220>
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 <222> (639)..(639)
 <223> n is a, c, g, or t

<220>
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 <222> (641)..(641)
 <223> n is a, c, g, or t

<220>
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 <222> (644)..(644)
 <223> n is a, c, g, or t

<220>
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 <222> (654)..(656)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (663)..(663)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (669)..(669)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (675)..(675)
 <223> n is a, c, g, or t

<220>
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 <222> (679)..(679)
 <223> n is a, c, g, or t

<220>
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<222> (685)..(686)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (691)..(693)
 <223> n is a, c, g, or t

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<400> 325
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tcttactgcc tcattacacg ggtgagaagg agtgaattgc tccaatggca acaaacaaaa      120
tggaaaaaat ggcattcaatt gatgcacagc ttagacaatt agtaccagca aaagttagtg      180
aagatgataa acttattgag tatgatgctt tgttggttga tcggtttctt gatatccttc      240
aggatttaca tggagaggat ctgaaagatt ctgttcaaga agtgtatgaa ctttctgcgg      300
agtatgaaag aaagcatgat cctaagaaac ttgaagagct cggaaatttg ataacaagtt      360
tagatgcagg agattcaatt gttgttgcta agtccttttc gcacatgctt aacttggcca      420
acttagctga agaggttcag attgctcatc gtcgaaggaa caagttgaag aaaggagatt      480
ttagggatga gagcaatgca actaccgaat cagacatcga agaaactctt aagagacttg      540
tgtttaatat gaagaaatct cctcaggaag ttnttgatgc gttgaagaac cnnaccgttg      600
atttggttct tactgctcat ccactcagt ccgttcgang nccnctgctt cccnnngcct      660
ggnacgggna ccgcnctgnc taccnnactg nnn                                     693
  
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<210> 326
 <211> 196
 <212> PRT
 <213> *Trifolium repens*

<220>
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 <222> (157)..(157)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (163)..(163)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (179)..(180)
 <223> Xaa can be any naturally occurring amino acid

<220>
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 <222> (184)..(184)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (187)..(187)
 <223> Xaa can be any naturally occurring amino acid

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 <222> (189)..(189)

<223> Xaa can be any naturally occurring amino acid

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<222> (191)..(192)

<223> Xaa can be any naturally occurring amino acid

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<221> misc_feature

<222> (194)..(194)

<223> Xaa can be any naturally occurring amino acid

<220>

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<222> (196)..(196)

<223> Xaa can be any naturally occurring amino acid

<400> 326

Met Ala Thr Asn Lys Met Glu Lys Met Ala Ser Ile Asp Ala Gln Leu
1 5 10 15

Arg Gln Leu Val Pro Ala Lys Val Ser Glu Asp Asp Lys Leu Ile Glu
20 25 30

Tyr Asp Ala Leu Leu Leu Asp Arg Phe Leu Asp Ile Leu Gln Asp Leu
35 40 45

His Gly Glu Asp Leu Lys Asp Ser Val Gln Glu Val Tyr Glu Leu Ser
50 55 60

Ala Glu Tyr Glu Arg Lys His Asp Pro Lys Lys Leu Glu Glu Leu Gly
65 70 75 80

Asn Leu Ile Thr Ser Leu Asp Ala Gly Asp Ser Ile Val Val Ala Lys
85 90 95

Ser Phe Ser His Met Leu Asn Leu Ala Asn Leu Ala Glu Glu Val Gln
100 105 110

Ile Ala His Arg Arg Arg Asn Lys Leu Lys Lys Gly Asp Phe Arg Asp
115 120 125

Glu Ser Asn Ala Thr Thr Glu Ser Asp Ile Glu Glu Thr Leu Lys Arg
130 135 140

Leu Val Phe Asn Met Lys Lys Ser Pro Gln Glu Val Xaa Asp Ala Leu
145 150 155 160

Lys Asn Xaa Thr Val Asp Leu Val Leu Thr Ala His Pro Thr Gln Ser
165 170 175

Val Arg Xaa Xaa Leu Leu Pro Xaa Ala Trp Xaa Gly Xaa Arg Xaa Xaa
180 185 190

Tyr Xaa Thr Xaa

195

<210> 327
 <211> 1307
 <212> DNA
 <213> *Trifolium repens*

<220>
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 <222> (2)..(4)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

<220>
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 <222> (8)..(8)
 <223> n is a, c, g, or t

<220>
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 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
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 <222> (33)..(33)
 <223> n is a, c, g, or t

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 <222> (988)..(988)
 <223> n is a, c, g, or t

<220>
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 <222> (1307)..(1307)
 <223> n is a, c, g, or t

<400> 327
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 tataaagacc aattcaattc ccaattcttt tggatccgaa atcattcatt ctacgcgtct 120
 tctctcttct ctgcgtttca aaccctagtt gttttgttga ttgatctaaa tggcgttctt 180
 tcgaagcggt tctgcgcttt caaaactacg atctcgtgtg ggtcaacaac ctagtcttgc 240
 taattcagtt agatggctcc aaactccaag ctccagtaac actgatcttt attctgagat 300
 gaaggagcta gttccagagt atcaggaacg tgtaagaag ttgaagaaag accatggaag 360
 tgttgaattg ggaaaaatca cagctgatat ggtacttggg ggaatgagag gaatgactgc 420
 tttagtgtgg ctaggctcag ctgttgaccc agatgagggg attcgcttta ggggcatgac 480
 aattcctgac tgccagaaaa cacttccagg tgcttttcct ggtggggagc ctttgcccga 540
 ggctatactg tggcttctat tgaccggaaa ggtaccaagt aaagagcaag tagattcatt 600
 agctcacgaa ttgcgaagtc gtgcaaaaat cccagagtat gcttacaagg caattgatgc 660
 actgcctgtt tctgctcatc caatgacaca atttagtact ggtgtaatgg ccctccaggt 720

ggagagtgag tttaaaaagg catacgagag tgggatacat aagtcaaggt attgggagcc 780
 aacttatgag gatagcttga atttaattgc tcgtttgcct ggaattgctg cctatatatta 840
 tcgacggata tacaaggatg gaaaaatcat accattggat gattccttgg attatggtgc 900
 aaactatgct cacatgttag gatttgatga tccagaaacg ctggagtta tgaggctgta 960
 tatttctatc catagtgatc atgaaggngg caacgttagt tctcacacag ctcacctagt 1020
 tgctagtcca ctatcagatc cttatcttgc attcgcagct gctctgaatg gtttagctgg 1080
 cccactgcat ggttttagcca atcaggaagt tctaagatgg atcagaaaca tagttaagga 1140
 gtttggaact ccaaataaa gtacagaaca attgagcgac tacattcata aaacattgaa 1200
 cagtggccag gttgtgcctg gatatggaca tggagttttg cgcaatacag acccaagata 1260
 cacttgccag agggagtgtg cattgaagca tttgcctaata gatccan 1307

<210> 328
 <211> 378
 <212> PRT
 <213> *Trifolium repens*

<400> 328

Met Ala Phe Phe Arg Ser Val Ser Ala Leu Ser Lys Leu Arg Ser Arg
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Val Gly Gln Gln Pro Ser Leu Ala Asn Ser Val Arg Trp Leu Gln Thr
20 25 30

Pro Ser Ser Ser Asn Thr Asp Leu Tyr Ser Glu Met Lys Glu Leu Val
35 40 45

Pro Glu Tyr Gln Glu Arg Val Lys Lys Leu Lys Lys Asp His Gly Ser
50 55 60

Val Glu Leu Gly Lys Ile Thr Ala Asp Met Val Leu Gly Gly Met Arg
65 70 75 80

Gly Met Thr Ala Leu Val Trp Leu Gly Ser Ala Val Asp Pro Asp Glu
85 90 95

Gly Ile Arg Phe Arg Gly Met Thr Ile Pro Asp Cys Gln Lys Thr Leu
100 105 110

Pro Gly Ala Phe Pro Gly Gly Glu Pro Leu Pro Glu Ala Ile Leu Trp
115 120 125

Leu Leu Leu Thr Gly Lys Val Pro Ser Lys Glu Gln Val Asp Ser Leu
130 135 140

Ala His Glu Leu Arg Ser Arg Ala Lys Ile Pro Glu Tyr Ala Tyr Lys
145 150 155 160

Ala Ile Asp Ala Leu Pro Val Ser Ala His Pro Met Thr Gln Phe Ser
165 170 175

Thr Gly Val Met Ala Leu Gln Val Glu Ser Glu Phe Thr Lys Ala Tyr
180 185 190

Glu Ser Gly Ile His Lys Ser Arg Tyr Trp Glu Pro Thr Tyr Glu Asp
195 200 205

Ser Leu Asn Leu Ile Ala Arg Leu Pro Gly Ile Ala Ala Tyr Ile Tyr
210 215 220

Arg Arg Ile Tyr Lys Asp Gly Lys Ile Ile Pro Leu Asp Asp Ser Leu
225 230 235 240

Asp Tyr Gly Ala Asn Tyr Ala His Met Leu Gly Phe Asp Asp Pro Glu
245 250 255

Thr Leu Glu Phe Met Arg Leu Tyr Ile Ser Ile His Ser Asp His Glu
260 265 270

Gly Asn Val Ser Ser His Thr Ala His Leu Val Ala Ser Ser Leu Ser
275 280 285

Asp Pro Tyr Leu Ala Phe Ala Ala Ala Leu Asn Gly Leu Ala Gly Pro
290 295 300

Leu His Gly Leu Ala Asn Gln Glu Val Leu Arg Trp Ile Arg Asn Ile
305 310 315 320

Val Lys Glu Phe Gly Thr Pro Asn Ile Ser Thr Glu Gln Leu Ser Asp
325 330 335

Tyr Ile His Lys Thr Leu Asn Ser Gly Gln Val Val Pro Gly Tyr Gly
340 345 350

His Gly Val Leu Arg Asn Thr Asp Pro Arg Tyr Thr Cys Gln Arg Glu
355 360 365

Phe Ala Leu Lys His Leu Pro Asn Asp Pro
370 375

<210> 329
<211> 692
<212> DNA
<213> Trifolium repens

<220>
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<222> (2)..(4)
<223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> n is a, c, g, or t

<220>
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 <222> (8)..(8)
 <223> n is a, c, g, or t

<220>
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 <222> (33)..(33)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (692)..(692)
 <223> n is a, c, g, or t

<400> 329
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 tataaagacc aattcaattc ccaattcttt tggatccgaa atcattcatt ctacgcttct 120
 tctctcttct ctgcgtttca aaccctagtt gttttgttga ttgatcttaa tggcgcttctt 180
 tcgaagcggt tctgcgcttt caaaactacg atctcgtgtg ggtcaacaac ctagtcttgc 240
 taattcagtt agatgggtcc aaactccaag ctccagtaac actgatcttt attctgagat 300
 gaaggagcta gttccagagt atcaggaacg tgtaagaag ttgaagaaag accatggaag 360
 tggtgaattg ggaaaaatca cagctgatat ggtacttggt ggaatgagag gaatgactgc 420
 tttagtgtgg ctaggctcag ctgttgaccc agatgaggga attcgcttta ggggcatgac 480
 aattcctgac tgccagaaaa cacttccagg tgcttttctt ggtggggagc ctttgcccga 540
 ggctatactg tggcttctat tgaccggaaa ggtaccaagt aaagagcaag tagattcatt 600
 agctcacgaa ttgcgaagtc gtgcaaaaat cccagagtat gcttacaagg caattgatgc 660
 actgcctggt tctgctcatc caatgacaca an 692

<210> 330
 <211> 588
 <212> DNA
 <213> Trifolium repens

<220>
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 <222> (9)..(9)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
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 <222> (588)..(588)
 <223> n is a, c, g, or t

<400> 330

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ttcaaaccct agttgttttg ttgattgatc ttaatggcgt tctttcgaag cgtttctgcg      180
ctttcaaaac tacgatctcg tgtgggtcaa caacctagtc ttgctaattc agttagatgg      240
ctccaaactc caagctccag taacactgat ctttattctg agatgaagga gctagttcca      300
gagtatcagg aacgtgttaa gaagttgaag aaagaccatg gaagtgttga attgggaaaa      360
atcacagctg atatggtact tgggtggaatg agaggaatga ctgctttagt gtggctaggc      420
tcagctgttg acccagatga gggaattcgc tttaggggca tgacaattcc tgactgccag      480
aaaacacttc caggtgcttt tcctggtggg gagcctttgc ccgaggctat actgtggctt      540
ctattgaccg gaaaggtacc aagtaaagag caagtagatt cattagcn                      588

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<210> 331
<211> 681
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (6)..(6)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (13)..(13)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (17)..(17)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (26)..(26)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (32)..(32)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (35)..(35)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (38)..(38)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (45)..(45)
<223> n is a, c, g, or t

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<220>

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<221> misc_feature
 <222> (681)..(681)
 <223> n is a, c, g, or t

<400> 331
 taccgnaaac ttncctncta cttttncaac cncctncgnc tcttnccttct ctgcggtttca 60
 aaccctagtt gttttgttga ttgatctaaa tggcggttctt tcgaagcggt tctgcgcttt 120
 caaaactacg atctcgtgtg ggtcaacaac ctagtctcgc taattcagtt agatgggtcc 180
 aaactccaag ctccagtaac actgatcttt attctgagat gaaggagcta gttccagagt 240
 atcaggaacg tgtaagaag ttgaagaaag atcatggaag tgttgaattg ggaaaagtca 300
 cagctgatat ggtacttggt ggaatgagag gaatgacagc tttagtgtgg ctaggctcag 360
 ctgttgacct agatgagggg attcgcttta ggggcatgac aattcctgac tgccagaaaa 420
 cacttccagg tgcttttctt ggtggggagc ctttgccga ggctatactg tggctgccat 480
 tgaccggaag ggtaccaagt aaagagcaag tagattcatt agctcacgaa ttgcgaagtc 540
 gtgcaaaaat cccagagtat gcttacaagg caattgatgc actgcctggt tctgctcatc 600
 caatgacaca atttagtact ggtgtaatgg ccctccaggt ggagagtgag tttacaaagg 660
 catatgagag tgggatacat n 681

<210> 332
 <211> 456
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (12)..(13)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (29)..(29)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (42)..(42)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (339)..(339)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (405)..(405)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature

<222> (417)..(417)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (423)..(423)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (426)..(426)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (441)..(441)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (444)..(444)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (455)..(456)
 <223> n is a, c, g, or t

<400> 332
 gtncccgaaa tnnttccttt ctacttttna ccctgttggt tngttgattg atctaaatgg 60
 cgttctttcg aagcgtttct gcgctttcaa aactacgatc tcgtgtgggt caacaaccta 120
 gtcttgctaa ttcagttaga tggctccaaa ctccaagctc cagtaacact gatctttatt 180
 ctgagatgaa ggagctagtt ccagagtatc aggaacgtgt taagaagttg aagaaagacc 240
 atggaagtgt tgaattggga aaaatcacag ctgatatggt acttggtgga atgagaggaa 300
 tgactgcttt agtgtggcta ggctcagctg ttgaccana tgaggggaatt cgctttaggg 360
 gcatgacaat tcctgactgc cacaaaacac ttgcaggtgc ttttntctggc ggggagnctt 420
 tgnccnaggc tatactgcgg ntnttattga ccggnn 456

<210> 333
 <211> 601
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (601)..(601)
 <223> n is a, c, g, or t

<400> 333
 gnggaaaaat acagctgata tgggtacttg tggaatgaga ggaatgactg ctttagtggtg 60
 gctaggctca gctgttgacc cagatgaggg aattcgcttt aggggcatga caattcctga 120
 ctgccagaaa acatttcag gtgctcttcc tggatggggag ctttgcccg aggctatact 180

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gtggcttcta ttgaccggaa aggtaccaag taaagagcaa gtagattcat tagctcacga      240
attgcgaagt cgtgcaaaaa tcccagagta tgcttacaag gcaattgatg cactgcctgt      300
ttctgctcat ccaatgacac aatttagtac tgggtgtaatg gccctccagg tggagagtga      360
gtttacaaag gcatacgaga gtgggataca taagtcaagg tattgggagc caacttatga      420
ggatagcttg aatttaattg ctcgtttgcc tgggaattgct gcctatattt atcgacggat      480
atacaaggat ggaaaaatca taccattgga tgattctttg gattatggtg caaactatgc      540
tcacatgtta ggatttgatg atccagaaac gctggagttt atgaggctgt atatttctat      600
n                                                                           601

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<210> 334
<211> 581
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

```

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<220>
<221> misc_feature
<222> (33)..(33)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (581)..(581)
<223> n is a, c, g, or t

```

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<400> 334
gnagaggaat gactgcttta gtgtggctgg ctngctgttg acccagatga gggaattcgc      60
tttaggggca tgacaattcc tgactgccag aaacacttcc aggtgctttt cctggtgggg      120
agcctttgcc cgaggctata ctgtggcttc tattgaccgg aaaggtacca agtaaagagc      180
aagtagattc attagctcac gaattgcgaa gtcgtgcaaa aatcccagag tatgcttaca      240
aggcaattga tgcactgcct gtttctgctc atccaatgac acaatttagt actggtgtaa      300
tggccctcca ggtggagagt gagtttacia aggcataga gagtgggata cataagtcaa      360
ggtattggga gccaaacttat gaggatagct tgaatttaat tgctcgtttg cctggaattg      420
ctgcctatat ttatcgacgg atatacaagg atggaaaaat catacattg gatgattctt      480
tggattatgg tgcaaactat gctcacatgt taggatttga tgatccagaa acgctggagt      540
ttatgaggct gtatatttct atccatagtg atcatgaagg n                          581

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<210> 335
<211> 559
<212> DNA
<213> Trifolium repens

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<220>

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<221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (559)..(559)
 <223> n is a, c, g, or t

<400> 335
 cntcagagtg ggancntagt aaggattggg agccacttat gaggatgctt gaatttaatt 60
 gctcgtttgc ctggaattgc tgcctatatt tatcgacgga tatacaagga tggaaaaatc 120
 ataccattgg atgattcttt ggattatggt gcaaactatg ctcacatggt aggatttgat 180
 gatccagaaa cgctggagtt tatgaggctg tatatttcta tccatagtga tcatgaaggt 240
 ggcaacgtta gttctcacac agctcaccta gttgctagtt cactatcaga tccttatctt 300
 gcattcgcag ctgctctgaa tggtttagct ggcccactgc atggtttagc caatcaggaa 360
 gttctacgat ggatcagaaa catagttaag gagtttgga ctccaaacat aagtacagaa 420
 caattgagcg actacattca taaaacattg aacagtggcc aggttggtgcc tggatatgga 480
 catggagttt tgcgcaatac agaccaaga tacacttgcc agaggaggtt tgcattgaag 540
 catttgccta atgatccan 559

<210> 336
 <211> 1244
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (124)..(124)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (1243)..(1244)
 <223> n is a, c, g, or t

<400> 336

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cntttcnttt ccacagcatc ctaatcctaa tcctaatacct aatcctatta ctaattacta      60
attactaatt actagtacta attagtaata ccgatccctt tttctcgaac ccattcattc      120
aagnagaaga aggaaaaaca aaatccacac aaacaaacat cttacaacaa tgtcaacgac      180
aactactaca accgacgaat ccaagctgca cgacgctgca cggaaccgtt tggccaccct      240
ctcagctcac ttgcttcctt cctccacaac ctccgccgcg ctctcccatc ctattcacct      300
ttctttcttc tccgggatct cccacacgct taatgtcaaa ggaacactca ccgttggtga      360
tgaacgtacc gggaagaagt ataccattga ggtctctcct gatggcaccg ttaaagccaa      420
tgatttcaag aagatatcaa ctgggaagaa tgataaggga ctcaaacttt atgatcctgg      480
atatttaaac actgctcctg tgcgatcaac aatttcttat attgatggtg atgagggaa      540
ccttagatat agaggatacc ccattgagga gttggccgag aaaagcacct ttccggaagt      600
ggcatatctc atattgtatg gaaatttgcc ttctgcaaat cagttacaag aatgggaatt      660
tgctatatct cagcattcag ccttacctca aggagttttg gatctcatac aatcaatgcc      720
tcaagatgca catcctatgg gcgtcctagt gaatgcaata agcgctctgt ctgtttttca      780
tcctgacgca aatcctgctc tcagaggtct tgacatctac aactcaaagc aagtgagaga      840
caaacaaata gcacggatta ttggaaagat aacaacaatt gctgctgcaa ttaatcttag      900
aatggcagga aggccacctg tgcttccatc caacaaacta tcttacacag agaacttcct      960
atacatgctt gattctctag gcaatcggtc atataaaccc aaccctcagc taactcgtgc     1020
actagacatc atcttcatcc tgcattgcaga acatgaaatg aattgctcta catctgctgt     1080
acgacacctt gcatcaagcg gcgtcgatgt atacactgct attgctggag gtgttgaggc     1140
tctgtatgga cctcttcatg gtggagctaa tgaggcggtc cttaaaatgc tgagtgaat      1200
tggaagtgtc gataacattc cagagttcat tgaaggtggt aann                          1244

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<210> 337
 <211> 358
 <212> PRT
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (358)..(358)
 <223> Xaa can be any naturally occurring amino acid

<400> 337

Met Ser Thr Thr Thr Thr Thr Asp Glu Ser Lys Leu His Asp Ala
1 5 10 15

Ala Arg Asn Arg Leu Ala Thr Leu Ser Ala His Leu Leu Pro Ser Ser
20 25 30

Thr Thr Ser Ala Ala Leu Leu His Pro Ile His Leu Ser Ser Ser
35 40 45

Gly Ile Ser Pro Pro Ser Asn Val Lys Gly Thr Leu Thr Val Val Asp
 50 55 60
 Glu Arg Thr Gly Lys Lys Tyr Thr Ile Glu Val Ser Pro Asp Gly Thr
 65 70 75 80
 Val Lys Ala Asn Asp Phe Lys Lys Ile Ser Thr Gly Lys Asn Asp Lys
 85 90 95
 Gly Leu Lys Leu Tyr Asp Pro Gly Tyr Leu Asn Thr Ala Pro Val Arg
 100 105 110
 Ser Thr Ile Ser Tyr Ile Asp Gly Asp Glu Gly Ile Leu Arg Tyr Arg
 115 120 125
 Gly Tyr Pro Ile Glu Glu Leu Ala Glu Lys Ser Thr Phe Pro Glu Val
 130 135 140
 Ala Tyr Leu Ile Leu Tyr Gly Asn Leu Pro Ser Ala Asn Gln Leu Gln
 145 150 155 160
 Glu Trp Glu Phe Ala Ile Ser Gln His Ser Ala Leu Pro Gln Gly Val
 165 170 175
 Leu Asp Leu Ile Gln Ser Met Pro Gln Asp Ala His Pro Met Gly Val
 180 185 190
 Leu Val Asn Ala Ile Ser Ala Leu Ser Val Phe His Pro Asp Ala Asn
 195 200 205
 Pro Ala Leu Arg Gly Leu Asp Ile Tyr Asn Ser Lys Gln Val Arg Asp
 210 215 220
 Lys Gln Ile Ala Arg Ile Ile Gly Lys Ile Thr Thr Ile Ala Ala Ala
 225 230 235 240
 Ile Asn Leu Arg Met Ala Gly Arg Pro Pro Val Leu Pro Ser Asn Lys
 245 250 255
 Leu Ser Tyr Thr Glu Asn Phe Leu Tyr Met Leu Asp Ser Leu Gly Asn
 260 265 270
 Arg Ser Tyr Lys Pro Asn Pro Gln Leu Thr Arg Ala Leu Asp Ile Ile
 275 280 285
 Phe Ile Leu His Ala Glu His Glu Met Asn Cys Ser Thr Ser Ala Val
 290 295 300
 Arg His Leu Ala Ser Ser Gly Val Asp Val Tyr Thr Ala Ile Ala Gly
 305 310 315 320

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (589)..(589)
 <223> n is a, c, g, or t

<400> 339
 gnagnagaag gaaacncaaa tccacaaaca aaactcttac aacaatgtca accacaacta 60
 ctacaaccga cgaatccaag ctgcacgacg ctgcacggaa ccgtttggcc accctctcag 120
 ctacttgcct tccttcctcc acaacctccg ccgcgctcct ccatacctatt cacctttccg 180
 cttcctccgg gatctcccca ccgtctaata tcaaaggaac actcaccggt gttgatgaac 240
 gtaccgggaa gaagtataac attgaggtct cacctgatgg caccgttaaa gccaatgatt 300
 tcaagaagat atcaactggg aagaatgata agggactcaa actttatgat cctggatatt 360
 taaacactgc tcctgtgcga tcaacaattt cttatattga tggatgatgag ggaatcctta 420
 gatatagagg atacccatt gagaggttg ccgagaaaag cacctttccg gaagtggcat 480
 atctcatatt gtatggaaat ttgccttctg caaatcagtt acaagaatgg gaatttgcta 540
 tatctcagca ttcagcctta cctcaaggag ttttgatct catacaatn 589

<210> 340
 <211> 594
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (2)..(3)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (593)..(594)
 <223> n is a, c, g, or t

<400> 340
 gnnagnagaag gaaacacaaa atncacaaac aaaaacatct tacaacaatg tcaaccacaa 60
 ctactacaac cgacgaatcc aagctgcacg acgctgcacg gaaccgtttg gccaccctct 120

```

cagctcactt gcttccttcc tccacaacct ccgccgcgct cctccatcct attcaccttt      180
ccgcttcctc cgggatctcc ccaccgtcta atgtcaaagg aacactcacc gttgttgatg      240
aacgtaccgg gaagaagtat aacattgagg tctcacctga tggcaccgtt aaagccaatg      300
atttcaagaa gatatcaact gggaagaatg ataagggact caaactttat gatcctggat      360
atttaaacac tgctcctgtg cgatcaacaa tttcttatat tgatggtgat gagggaatcc      420
ttagatatag aggatacccc attgaggagt tggccgagaa aagcaccttt ccggaagtgg      480
catatctcat attgtatgga aatttgcctt ctgcaaata gttacaagaa tgggaatttg      540
ctatatctca gcattcagcc ttacctcaag gagttttgga tctcatacaa tcnn          594

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<210> 341
<211> 570
<212> DNA
<213> Trifolium repens

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<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (20)..(20)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (570)..(570)
<223> n is a, c, g, or t

```

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<400> 341
gnaaagagga aaaacaaatn cacaacaac atcttacaca atgtcacgac aactactaca      60
accgacgaat ccaagctgca cgacgctgca cggaaccgtt tagccaccct ctgagctcac      120
ttgcttcctt cctccacaac ctccgccgcg ctctccatc ctattcacct ttcttcttcc      180
tccgggatct cccacccgtc taatgtcaaa ggaacactca ccgttggtga tgaacgtacc      240
gggaagaagt ataccattga ggtctctcct gatggcaccg ttaaagccaa tgatttcaag      300
aagatatcga ctgggaagaa tgataaggga ctcaaacttt atgatcctgg atatttaaac      360
actgctcctg tgcgatcaac aatttcttat attgatggtg atgagggaa ccttagatat      420
agaggatacc ccattgagga gttggccgag aaaagcacct ttccggaagt ggcatatctc      480
atattgtatg gaaatttgcc ttctgcaaata cagttacaag aatgggaatt tgctatatct      540
cagcattcag ccttacctca aggagttttn          594

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```

<210> 342
<211> 592
<212> DNA
<213> Trifolium repens

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```

<220>
<221> misc_feature

```

<222> (2)..(2)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (591)..(592)
 <223> n is a, c, g, or t

<400> 342
 gnaaggaaaa acaaatncca aacaactctt acacaatgtc acgacaacta ctacaaccga 60
 cgaatccaag ctgcacgacg ctgcacggaa ccgtttggct accctctcag ctcacttgct 120
 tccttcctcc acaaactccg ctgcgcttct ccatcctatc cacctttctt cttcctctgg 180
 gatctcccca ccgtctaata tcaaaggaac actcaccgtt gttgatgaac gtaccgggaa 240
 gaagtatacc attgaggtct ctctgatgg caccgttaaa gccaatgatt tcaagaagat 300
 atcaactggg aagaatgata aggggctcaa actttatgat cctggatatt taaacactgc 360
 tcctgtgcga tcaacaattt cttatattga tggatgatgag ggaatcctta gatatagagg 420
 atacccatt gaagagttgg ccgagaaaag cacctttccg gaagtggcat atctcatatt 480
 gtatggaaat ttgccttctg caaatcagtt acaagaatgg gaatttgcta tatctcagca 540
 ttcagcctta cctcaaggag ttttggatct catacaatca atgcctcaag nn 592

<210> 343
 <211> 579
 <212> DNA
 <213> Trifolium repens

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (579)..(579)
 <223> n is a, c, g, or t

<400> 343
 atagaggctc cnattgagga gttggcgaga aaagcacttt tatggaagtg tcctatctat 60
 aatgtatgga agtttaccta ctgaaagtaa gttagctgaa tggaatttcg ctatatctca 120
 gcattcagct gttccagaag gagttttgga tatcatataa tcaatgcctc atgatgcaca 180
 tcctatgggt gtcctagtga atgcaataag cgctctttct gtttttcac ctagcgccaa 240
 tcctgctctt agaggtcttg atatttacga ctcaaaggaa gtgagagaca aacaaatagc 300
 acggattatt ggaaagatta taacaattgc tgctgcagtt tatcttagaa tggcaggaag 360
 gccacctgtg cttccatcca accaactatc ttacactgag aacttcctat acatgcttga 420
 ttcttttaggc aatcgggtcat ataaacccaa ccctcagcta actcgtgcac tagacattat 480

cttcatcctg catgcagaac atgaaatgaa ttgctctaca tctgctgtcc gacaccttgc 540
 atcaagcggc gttgatgtat atactgctat tgctggggn 579

<210> 344
 <211> 594
 <212> DNA
 <213> *Trifolium repens*

<220>
 <221> misc_feature
 <222> (593)..(594)
 <223> n is a, c, g, or t

<400> 344
 agaatgggaa ttgctatat ctagcattag ccttacctca aggagttttg gatctcatac 60
 aatcaatgcc tcaagatgca catcctatgg gcgtgcttgt taatgctcta agtgctttgt 120
 ctgtttttca tcctgatgca aatcctgctc tcagagggtct tgacatctac aactcaaagc 180
 aagtgagaga caaacaata gtgcggatta ttggaaagat aacaacaatt gctgctgcga 240
 ttaatccttag attgggagga aggccacctg ttcttccatc caacaaactt tcttacacag 300
 agaacttcct ttacatgctt gattctcttg gcaatcggtc atataaacct aatcctcgtc 360
 taactcgtgc actggacatc atcttcatcc ttcatgcaga acatgaaatg aattgctcta 420
 catctgctgt acgccacctt gcatcaagtg gtgtcgatgt atacactgct attgctggag 480
 gtgttgagc tctgtatgga cctcttcatg gtggagctaa tgaggcggtc cttaaaatgc 540
 tgagtgaat tggaagtgtc gataacattc cagagttcat tgaagggtgt aann 594

<210> 345
 <211> 1738
 <212> DNA
 <213> *Trifolium repens*

<400> 345
 ggccgcgaat tcactagtga ttaagcagtg gtaacaacgc agagtacgcg ggggtaggcg 60
 gagatttcaa acccaatttt cctcttaaatt ctctcccaac ttctccttcc aattcccatt 120
 accattcatt cccagagggtc gagatggcag catcagcagc agctactttt actattggaa 180
 ctgccc aaac agggaggcca cttcctcaat caaacctttt tggtttgaaa gtcaattccc 240
 aggttaattt taagaccttc tctgggtctca aggccatgtc atctctaaga tgcgagtctg 300
 aatcatcttt ctttggcaac gaaactagtg ctgctctgcg tgcaactttt gcacccaaag 360
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<210> 346
 <211> 408
 <212> PRT
 <213> *Trifolium repens*

<400> 346

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20 25 30

Gln Val Asn Phe Lys Thr Phe Ser Gly Leu Lys Ala Met Ser Ser Leu
35 40 45

Arg Cys Glu Ser Glu Ser Ser Phe Phe Gly Asn Glu Thr Ser Ala Ala
50 55 60

Leu Arg Ala Thr Phe Ala Pro Lys Ala Gln Lys Glu Asn Gln Asn Ile
65 70 75 80

Asn Arg Asn Leu His Pro Gln Ala Ser Tyr Lys Val Ala Val Leu Gly
85 90 95

Ala Ala Gly Gly Ile Gly Gln Pro Leu Ala Leu Leu Ile Lys Met Ser
100 105 110

Pro Leu Val₁₁₅ Ser Asp Leu His₁₂₀ Leu Tyr Asp Ile Ala Asn₁₂₅ Val Lys Gly
 Val Ala₁₃₀ Ala Asp Ile Ser His₁₃₅ Cys Asn Thr Pro Ser₁₄₀ Lys Val Leu Asp
 Phe Thr Gly Ala Ser Glu₁₅₀ Leu Ala Asn Cys Leu₁₅₅ Lys Gly Val Asp Val₁₆₀
 Val Val Ile Pro Ala₁₆₅ Gly Val Pro Arg Lys₁₇₀ Pro Gly Met Thr Arg₁₇₅ Asp
 Asp Leu Phe Asn₁₈₀ Ile Asn Ala Gly Ile₁₈₅ Val Arg Asp Leu Val₁₉₀ Thr Ala
 Val Ala Asp₁₉₅ Asn Cys Pro Gly Ala₂₀₀ Phe Ile His Val Ile₂₀₅ Ser Asn Pro
 Val Asn₂₁₀ Ser Thr Val Pro Ile₂₁₅ Ala Ala Glu Ile Leu₂₂₀ Lys Gln Lys Gly
 Val Tyr Asp Pro Lys Lys₂₃₀ Leu Phe Gly Val Thr₂₃₅ Thr Leu Asp Val Val₂₄₀
 Arg Ala Asn Thr Phe₂₄₅ Val Ala Gln Lys Lys₂₅₀ Asn Leu Arg Leu Ile₂₅₅ Asp
 Val Asp Val Pro₂₆₀ Val Val Gly Gly His₂₆₅ Ala Gly Ile Thr Ile₂₇₀ Leu Pro
 Leu Leu Ser₂₇₅ Lys Thr Arg Pro Ser₂₈₀ Ala Asn Phe Thr Asp₂₈₅ Glu Glu Ile
 Glu Ala₂₉₀ Leu Thr Val Arg Ile₂₉₅ Gln Asn Ala Gly Thr₃₀₀ Glu Val Val Glu
 Ala Lys Ala Gly Ala Gly₃₁₀ Ser Ala Thr Leu Ser₃₁₅ Met Ala Tyr Ala Ala₃₂₀
 Ala Arg Phe Val Glu₃₂₅ Ser Ser Leu Arg Ala₃₃₀ Leu Asp Gly Asp Ala₃₃₅ Asp
 Val Tyr Glu Cys₃₄₀ Ser Phe Val Gln Ser₃₄₅ Asp Leu Thr Asp Leu₃₅₀ Pro Phe
 Phe Ala Ser₃₅₅ Arg Val Lys Ile Gly₃₆₀ Arg Lys Gly Val Glu₃₆₅ Ala Leu Ile
 Pro Thr Asp Leu Gln Gly Leu₃₇₅ Ser Glu Tyr Glu Gln₃₈₀ Lys Ala Leu Glu

Ala Leu Lys Pro Glu Leu Lys Ala Ser Ile Glu Lys Gly Ile Ala Phe
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<210> 347
 <211> 3372
 <212> DNA
 <213> *Trifolium repens*

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 aatctcctca ggaagttttt gatgcgttga agaaccagac cgttgatttg gttcttactg 660
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<210> 348
<211> 967
<212> PRT
<213> Trifolium repens

<400> 348

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Tyr Asp Ala Leu Leu Leu Asp Arg Phe Leu Asp Ile Leu Gln Asp Leu
35      40      45
His Gly Glu Asp Leu Lys Asp Ser Val Gln Glu Val Tyr Glu Leu Ser
50      55      60
Ala Glu Tyr Glu Arg Lys His Asp Pro Lys Lys Leu Glu Glu Leu Gly
65      70      75      80
Asn Leu Ile Thr Ser Leu Asp Ala Gly Asp Ser Ile Val Val Ala Lys
85      90      95
Ser Phe Ser His Met Leu Asn Leu Ala Asn Leu Ala Glu Glu Val Gln
100     105     110
Ile Ala His Arg Arg Arg Asn Lys Leu Lys Lys Gly Asp Phe Arg Asp
115     120     125
Glu Ser Asn Ala Thr Thr Glu Ser Asp Ile Glu Glu Thr Leu Lys Arg
130     135     140
Leu Val Phe Asn Met Lys Lys Ser Pro Gln Glu Val Phe Asp Ala Leu
145     150     155     160
Lys Asn Gln Thr Val Asp Leu Val Leu Thr Ala His Pro Thr Gln Ser
165     170     175
Val Arg Arg Ser Leu Leu Gln Lys His Gly Arg Val Arg Asn Cys Leu
180     185     190
Ser Gln Leu Tyr Ala Lys Asp Ile Thr Pro Asp Asp Lys Gln Glu Leu
195     200     205
Asp Glu Ala Leu Gln Arg Glu Ile Gln Ala Ala Phe Arg Thr Asp Glu
210     215     220
Ile Lys Arg Thr Pro Pro Thr Pro Gln Asp Glu Met Arg Ala Gly Met
225     230     235     240
Ser Tyr Phe His Glu Thr Ile Trp Lys Gly Val Pro Lys Phe Leu Arg
245     250     255
Arg Val Asp Thr Ala Leu Lys Asn Ile Gly Ile Asn Glu Arg Val Pro
260     265     270

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Tyr Asn Ala Pro Leu Ile Gln Phe Ser Ser Trp Met Gly Gly Asp Arg
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 Asp Gly Asn Pro Arg Val Thr Pro Glu Val Thr Arg Asp Val Cys Leu
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 305 310 315 320
 Leu Met Phe Glu Leu Ser Met Trp Arg Cys Asn Asp Glu Leu Arg Asp
 325 330 335
 Arg Ala Glu Glu Leu His Arg Asn Ser Lys Lys Asp Glu Val Ala Lys
 340 345 350
 His Tyr Ile Glu Phe Trp Lys Lys Ile Pro Leu Asn Glu Pro Tyr Arg
 355 360 365
 Val Ile Leu Gly Asp Val Arg Asp Lys Leu Tyr Arg Thr Arg Glu Arg
 370 375 380
 Ser Arg Tyr Leu Leu Ala His Gly Tyr Ser Glu Ile Pro Glu Glu Ala
 385 390 395 400
 Thr Phe Thr Asn Val Asp Glu Phe Leu Glu Pro Leu Glu Leu Cys Tyr
 405 410 415
 Arg Ser Leu Cys Ala Cys Gly Asp Arg Ala Val Ala Asp Gly Ser Leu
 420 425 430
 Leu Asp Phe Leu Arg Gln Val Ser Thr Phe Gly Leu Ser Leu Val Arg
 435 440 445
 Leu Asp Ile Arg Gln Glu Ser Asp Arg His Thr Asp Val Met Asp Ala
 450 455 460
 Ile Thr Lys His Leu Glu Ile Gly Ser Tyr Gln Asp Trp Ser Glu Glu
 465 470 475 480
 Lys Arg Gln Glu Trp Leu Leu Ser Glu Leu Val Gly Lys Arg Pro Leu
 485 490 495
 Phe Gly Pro Asp Leu Pro Gln Thr Asp Glu Ile Arg Glu Val Leu Glu
 500 505 510
 Thr Phe His Val Ile Ala Glu Leu Pro Ser Asp Asn Phe Gly Ala Tyr
 515 520 525
 Ile Ile Ser Met Ala Thr Ala Pro Ser Asp Val Leu Ala Val Glu Leu
 530 535 540

Leu Gln Arg Glu Cys Lys Ile Lys Asn Pro Leu Arg Val Val Pro Leu
 545 550 555 560
 Phe Glu Lys Leu Ala Asp Leu Glu Ser Ala Pro Ala Ala Leu Ala Arg
 565 570 575
 Leu Phe Ser Ile Asp Trp Tyr Ile Asn Arg Ile Asp Gly Lys Gln Glu
 580 585 590
 Val Met Ile Gly Tyr Ser Asp Ser Gly Lys Asp Ala Gly Arg Phe Ser
 595 600 605
 Ala Ala Trp Gln Leu Tyr Lys Ala Gln Glu Asp Leu Ile Asn Val Ala
 610 615 620
 Gln Lys Tyr Gly Val Lys Leu Thr Met Phe His Gly Arg Gly Gly Thr
 625 630 635 640
 Val Gly Arg Gly Gly Gly Pro Thr His Leu Ala Ile Leu Ser Gln Pro
 645 650 655
 Pro Asp Thr Ile His Gly Ser Leu Arg Val Thr Val Gln Gly Glu Val
 660 665 670
 Ile Glu Gln Ser Phe Gly Glu Glu His Leu Cys Phe Arg Thr Leu Gln
 675 680 685
 Arg Phe Thr Ala Ala Thr Leu Glu His Gly Met Arg Pro Pro Ser Ser
 690 695 700
 Pro Lys Pro Glu Trp Arg Glu Leu Met Asp Gln Met Ala Val Ile Ala
 705 710 715 720
 Thr Glu Glu Tyr Arg Ser Ile Val Phe Lys Glu Pro Arg Phe Val Glu
 725 730 735
 Tyr Phe Arg Leu Ala Thr Pro Glu Met Glu Tyr Gly Arg Met Asn Ile
 740 745 750
 Gly Ser Arg Pro Ala Lys Arg Arg Pro Cys Gly Gly Ile Glu Thr Leu
 755 760 765
 Arg Ala Ile Pro Trp Ile Phe Ala Trp Thr Gln Thr Arg Phe His Leu
 770 775 780
 Pro Val Trp Leu Gly Phe Gly Ala Ala Phe Lys Gln Val Ile Ala Lys
 785 790 795 800
 Asp Val Lys Asn Leu His Met Leu Gln Glu Met Tyr Asn Gln Trp Pro
 805 810 815

Phe Phe Arg Val Thr Ile Asp Leu Val Glu Met Val Phe Ala Lys Gly
820 825 830

Asp Pro Gly Ile Ala Ala Leu Asn Asp Arg Leu Leu Val Ser Gln Asp
835 840 845

Leu Trp Pro Phe Gly Glu Gln Leu Arg Ser Lys Tyr Glu Glu Thr Lys
850 855 860

Lys Leu Leu Leu Gln Val Ala Thr His Lys Glu Val Leu Glu Gly Asp
865 870 875 880

Pro Tyr Leu Lys Gln Arg Leu Arg Leu Arg Asp Ser Tyr Ile Thr Thr
885 890 895

Leu Asn Val Phe Gln Ala Tyr Thr Leu Lys Arg Ile Arg Asp Pro Asn
900 905 910

Tyr Lys Val Glu Val Arg Pro Arg Val Ser Lys Glu Ser Ala Glu Thr
915 920 925

Ser Lys Ser Ala Asp Glu Leu Val Thr Leu Asn Pro Thr Ser Glu Tyr
930 935 940

Ala Pro Gly Leu Glu Asp Thr Leu Ile Leu Thr Met Lys Gly Ile Ala
945 950 955 960

Ala Gly Met Gln Asn Thr Gly
965

<210> 349
<211> 2066
<212> DNA
<213> Trifolium repens

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aattcttttg gatccgaaat cattcattct acgcttcttc tctcttctct gcgtttcaaa 180
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 tacgaggggtg ggatacataa gtcaagggtat tgggagccaa cttatgagga tagcttgaat 840
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 accactgctt aatcactagt gaattc 2066

<210> 350
 <211> 472
 <212> PRT
 <213> *Trifolium repens*

<400> 350

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20 25 30

Pro Ser Ser Ser Asn Thr Asp Leu Tyr Ser Glu Met Lys Glu Leu Val
35 40 45

Pro Glu Tyr Gln Glu Arg Val Lys Lys Leu Lys Lys Asp His Gly Ser
 50 55 60
 Val Glu Leu Gly Lys Ile Thr Ala Asp Met Val Leu Gly Gly Met Arg
 65 70 75 80
 Gly Met Thr Ala Leu Val Trp Leu Gly Ser Ala Val Asp Pro Asp Glu
 85 90 95
 Gly Ile Arg Phe Arg Gly Met Thr Ile Pro Asp Cys Gln Lys Thr Leu
 100 105 110
 Pro Gly Ala Phe Pro Gly Gly Glu Pro Leu Pro Glu Ala Ile Leu Trp
 115 120 125
 Leu Leu Leu Thr Gly Lys Val Pro Ser Lys Glu Gln Val Asp Ser Leu
 130 135 140
 Ala His Glu Leu Arg Ser Arg Ala Lys Ile Pro Glu Tyr Ala Tyr Lys
 145 150 155 160
 Ala Ile Asp Ala Leu Pro Val Ser Ala His Pro Met Thr Gln Phe Ser
 165 170 175
 Thr Gly Val Met Ala Leu Gln Val Glu Ser Glu Phe Thr Lys Ala Tyr
 180 185 190
 Glu Gly Gly Ile His Lys Ser Arg Tyr Trp Glu Pro Thr Tyr Glu Asp
 195 200 205
 Ser Leu Asn Leu Ile Ala Arg Leu Pro Gly Ile Ala Ala Tyr Ile Tyr
 210 215 220
 Arg Arg Ile Tyr Lys Asp Gly Lys Ile Ile Pro Leu Asp Asp Ser Leu
 225 230 235 240
 Asp Tyr Gly Ala Asn Tyr Ala His Met Leu Gly Phe Asp Asp Pro Glu
 245 250 255
 Thr Leu Glu Phe Met Arg Leu Tyr Ile Ser Ile His Ser Asp His Glu
 260 265 270
 Gly Gly Asn Val Ser Ser His Thr Ala His Leu Val Ala Ser Ser Leu
 275 280 285
 Ser Asp Pro Tyr Leu Ala Phe Ala Ala Ala Leu Asn Gly Leu Ala Gly
 290 295 300
 Pro Leu His Gly Leu Ala Asn Gln Glu Val Leu Arg Trp Ile Arg Asn
 305 310 315 320

Ile Val Lys Glu Phe Gly Thr Pro Asn Ile Ser Thr Glu Gln Leu Ser
325 330 335

Asp Tyr Ile His Lys Thr Leu Asn Ser Gly Gln Val Val Pro Gly Tyr
340 345 350

Gly His Gly Val Leu Arg Asn Thr Asp Pro Arg Tyr Thr Cys Gln Arg
355 360 365

Glu Phe Ala Leu Lys His Leu Pro Asn Asp Pro Leu Phe Gln Leu Val
370 375 380

Ser Lys Ile Lys Glu Val Val Pro Pro Ile Leu Thr Lys Leu Gly Lys
385 390 395 400

Val Lys Asn Pro Trp Pro Asn Val Asp Ala His Ser Gly Val Leu Leu
405 410 415

Asn Tyr Tyr Gly Leu Thr Glu Glu Asn Tyr Tyr Thr Val Leu Phe Gly
420 425 430

Val Ala Arg Ser Ile Gly Val Gly Pro Gln Leu Ile Trp Asp Arg Ala
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Leu Gly Met Pro Leu Glu Arg Pro Lys Ser Val Thr Leu Glu Lys Leu
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Glu Lys Leu Val Gly Ala Ser Ser
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<211> 2066
<212> DNA
<213> Trifolium repens

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Pro Glu Tyr Gln Glu Arg Val Lys Lys Leu Lys Lys Asp His Gly Ser
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 Pro Gly Ala Phe Pro Gly Gly Glu Pro Leu Pro Glu Ala Ile Leu Trp
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 Thr Gly Val Met Ala Leu Gln Val Glu Ser Glu Phe Thr Lys Ala Tyr
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 Glu Ser Gly Ile His Lys Ser Arg Tyr Trp Glu Pro Thr Tyr Glu Asp
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Ser Lys Ile Lys Glu Val Val Pro Pro Ile Leu Thr Lys Leu Gly Lys
 385 390 395 400

Val Lys Asn Pro Trp Pro Asn Val Asp Ala His Ser Gly Val Leu Leu
 405 410 415

Asn Tyr Tyr Gly Leu Thr Glu Glu Asn Tyr Tyr Thr Val Leu Phe Gly
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Val Ala Arg Ser Ile Gly Val Gly Pro Gln Leu Ile Trp Asp Arg Ala
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2004/000493

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: A01H 5/00, C12N 15/29

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPIDS, CA, MEDLINE, AGRICOLA: phosphoenolpyruvate carboxylase, PEPC, malate dehydrogenase, MDH, plsmt, grass, rye grass, lolium, fescue, festuca, clover, trifolium, medic, medicago, transgenic, transorm, genetic engineer, genetic modify, krebs, TCA, organic acid, soil

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Beaujean A <i>et al</i> , "Integration and expression of Sorghum C4 phosphoenolpyruvate carboxylase and chloroplastic NADP+-malate dehydrogenase separately or together in C3 potato plants", <i>Plant Science</i> , 2001, 160:1199-1210 whole of document	9, 18
X	Gallardo F <i>et al</i> , "Monocotyledonous C4 NADP+-malate dehydrogenase is efficiently synthesized, targeted to chloroplasts and processed to an active form in transgenic plants of the C3 dicotyledon tobacco", <i>Planta</i> , 1995, 197:324-332 see page 331, right column, paragraph beginning line 15	9, 18
X	WO 2000/073475 A1 (Pioneer Hi-Bred International) 7 December 2000 page 4 line 16 to 23	9, 18

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
18 June 2004

Date of mailing of the international search report
24 JUN 2004

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AUSTRALIAN PATENT OFFICE
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Authorized officer

GARETH COOK
Telephone No : (02) 6283 2541

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2004/000493

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	Samac DA <i>et al</i> , "Plant improvement for tolerance to aluminum in acid soils - a review", <i>Plant Cell, Tissue and Organ Culture</i> , December 2003, 75(3):189-207 see pages 202-203	9, 18
E, X	US 2004/116682 A1 (Cheikh <i>et al</i>) 17 June 2004 whole of document	9, 18
A	Häusler RE <i>et al</i> , "Single and double overexpression of C4-cycle genes had differential effects on the pattern of endogenous enzymes, attenuation of photorespiration and on contents of UV protectants in transgenic potato and tobacco plants", <i>Journal of Experimental Botany</i> , 2001, 52(362):1785-1803 whole of document	
A	Häusler RE <i>et al</i> , "Overexpression of C4-cycle enzymes in transgenic C3 plants to improve C3-photosynthesis", <i>Journal of Experimental Botany</i> , 2002, 53(369):591-607 whole of document	
A	Tesfaye M <i>et al</i> , "Overexpression of Malate Dehydrogenase in Transgenic Alfalfa Enhances Organic Acid Synthesis and Confers Tolerance to Aluminum", <i>Plant Physiology</i> , 2001, 127:1836-1844 whole of document	
A	EP 1 122 316 A1 (Centro de Investigacion y Estudios Avanzados del Instituto nacional Irapuato) 8 August 2001 whole of document	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/000493

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See supplemental sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 9, 10, 18, 19 as requested by the Applicant.

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/000493

Supplemental Box

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No III: Observations where unity of invention is lacking.

The problem addressed by the current application is the modification of organic acid biosynthesis in plants. The solution is provided through the use of polypeptides involved in the organic acid biosynthesis, and their encoding polynucleotides, from clover (*Trifolium*), medic (*Medicago*), ryegrass (*Lolium*) or fescue (*Festuca*), specifically polypeptides and their encoding polynucleotides from white clover (*Trifolium repens*) and perennial ryegrass (*Lolium perenne*). These polypeptides have been placed into three broad groupings by the Applicant: malate dehydrogenases (MDH), citrate synthases (CS) and phosphoenol pyruvate carboxylases (PEPC).

The general concept underlying the application appears to reside in enzymes involved in organic acid biosynthesis. However the enzymes involved in the organic acid biosynthetic pathway through the tricarboxylic acid cycle (TCA) are known in the prior art, as has been admitted by the Applicant page 2 lines 18 to 22 of the specification. Therefore the involvement of the enzymes in organic acid biosynthesis cannot be considered a special technical feature. The enzymes themselves may be from clover, medic, ryegrass or fescue, with the specifically disclosed sequences being from either from white clover or perennial ryegrass. However the species of origin can only constitute a special technical feature if the species of origin makes a contribution over the prior art. There is nothing in the application to indicate that isolation of peptides from white clover makes an inventive contribution over the prior art, therefore the species of origin cannot be considered a special technical feature.

Since there is no obvious special technical feature, it is appropriate to use the Markush approach to analyse the application for unity of invention.

(A) The common property is the involvement of the enzymes in the organic acid biosynthesis in plants.

(B) (1) There is no common structure that is a significant structural element shared by all the polypeptides. A significant structural element is one that forms the contribution of the polypeptides over the prior art, and is disclosed in the application.

(B) (2) There is no single recognised class of compounds embracing all the polypeptides, as the polypeptides belong to different classes of proteins, ie. MDH, CS and PEPC, each carrying out different biological functions.

Unity of invention is therefore lacking in the application.

The Applicant has placed the enzymes into three groups: MDH, CS and PEPC. Each of these groups needs to be analysed to determine if there is unity within the Applicant's groupings. Taking MDH, this group of enzymes is known in the prior art, as has been admitted by the Applicant at page 2 lines 18 to 22 of the specification. As this is a known grouping, Markush practice again needs to be applied to determine if unity exists.

(A) The common property is the involvement of the MDHs in the reversible conversion of malate to oxaloacetate.

(B) (1) There is no common structure that is a significant structural element shared by all the MDH enzymes that has been disclosed in the specification.

(B) (2) There is no single recognised class embracing all MDHs, the recognised class being one where there is an expectation that all members of the class will behave in the same way in the context of the claimed invention. According to the application in the paragraph bridging pages 2 and 3, MDH is important in several metabolic pathways and plants contain multiple forms that differ in coenzyme specificity and subcellular location. The diversity of function of MDHs is also reflected in that there are multiple enzyme classification (EC) numbers into which the enzymes are placed according to function, the numbers being 1.1.1.37, 1.1.1.38, 1.1.1.39, 1.1.1.40, 1.1.1.82 and 1.1.1.83.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/000493

Supplemental Box

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No III: Observations where unity of invention is lacking.

Unity in the Applicant's grouping of MDH enzymes is therefore lacking. Each polypeptide sequence within the Applicant's MDH grouping is considered to be a separate invention. Similarly with PEPC each polypeptide sequence is considered a separate invention as no significant structural element has been identified in the application, and there is no single recognised class embracing all PEPCs - the application states at page 3 lines 4 to 10 that PEPCs are widely distributed through most plant tissues filling various physiological roles, and these enzymes have different EC numbers depending on their coenzymes, the EC numbers being 4.1.1.31, 4.1.1.32, 4.1.1.49. The CS group is considered to be a single group for the purposes of unity, there being only one class embracing all CS enzymes.

The application is therefore considered to be to 37 separate inventions. The 37 separate inventions are:

1. citrate synthases (CS)

2 to 37. each separate polypeptide sequence of the Applicant's groupings MDH and PEPC (ie. each polypeptide of SEQ IDs 22, 31, 35, 37, 39, 41, 45, 47, 112, 114, 116, 184, 186, 188, 190, 198, 200, 202, 204, 206, 219, 253, 272, 277, 289, 294, 297, 303, 307, 309, 311, 316, 320, 324, 326 and 348 is a separate invention).

The Applicant requested the search be limited to claims 9, 10, 18 and 19. Claims 9 and 10 are directed to a construct comprising sequences encoding MDH, PEPC and optionally CS. Claims 18 and 19 are directed to a method of modifying organic acid synthesis by transforming a plant with sequences encoding MDH, PEPC and optionally CS. Both a construct comprising sequences encoding MDH and PEPC and a plant transformed with such a construct are disclosed in:

Beaujean A et al, "Integration and expression of Sorghum C4 phosphoenolpyruvate carboxylase and chloroplastic NADP⁺-malate dehydrogenase separately or together in C3 potato plants", *Plant Science*, 2001, 160:1199-1210

Hence these claims lack unity, *a posteriori*.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2004/000493

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
WO	200/073475	AU	51593/00	CA	2 361 912	US	6 653 535
		BR	0010975	EP	1 181 380	US	2004/078839
EP	1 122 316	AU	45533/98	BR	9815878	WO	1999/063100
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.							
END OF ANNEX							